March 1975

Smithsonian

Detail of his dreamlit world—
Dada Max Ernst, at 83,
in retrospective exhibit (p. 52)

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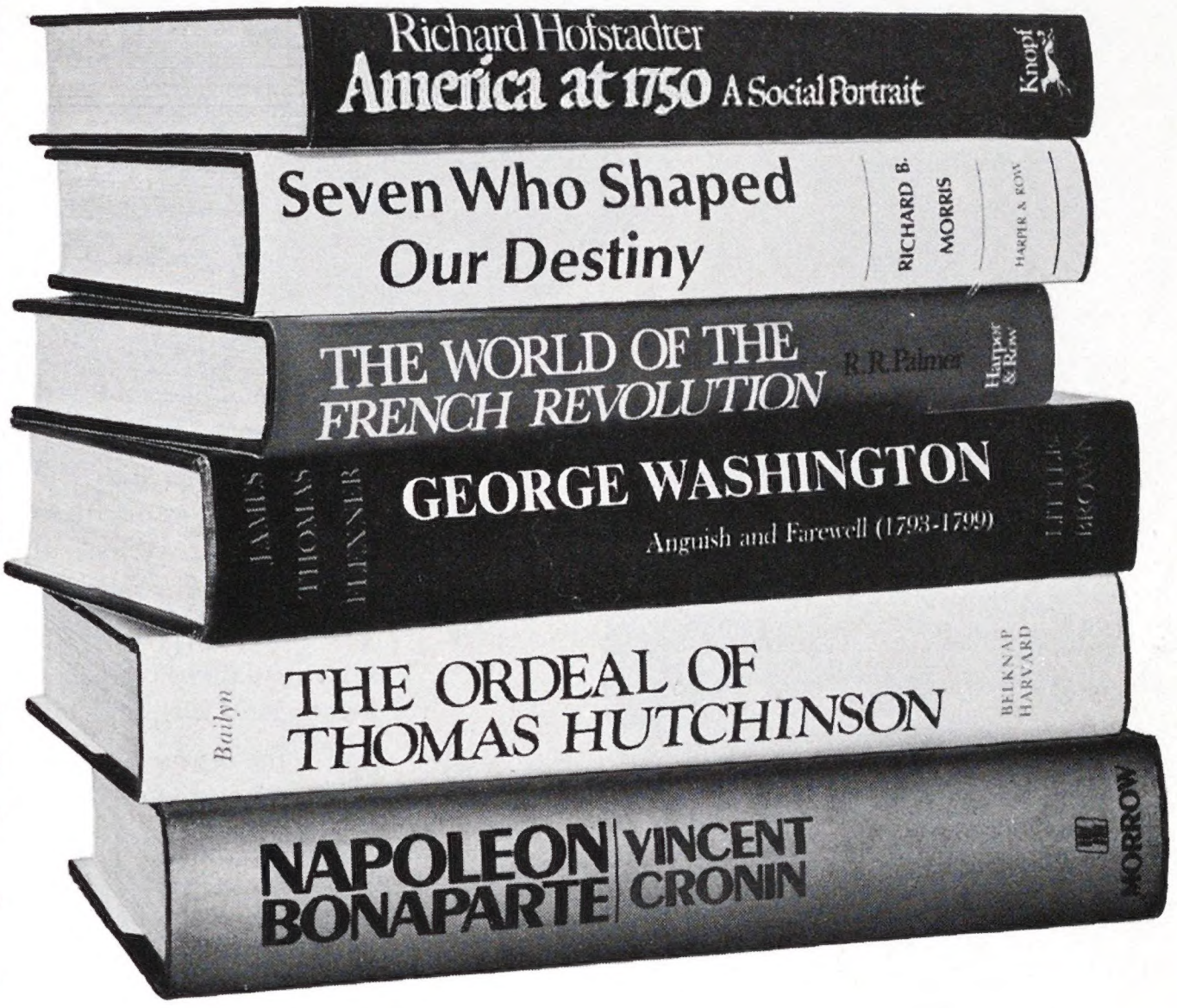

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Smithsonian

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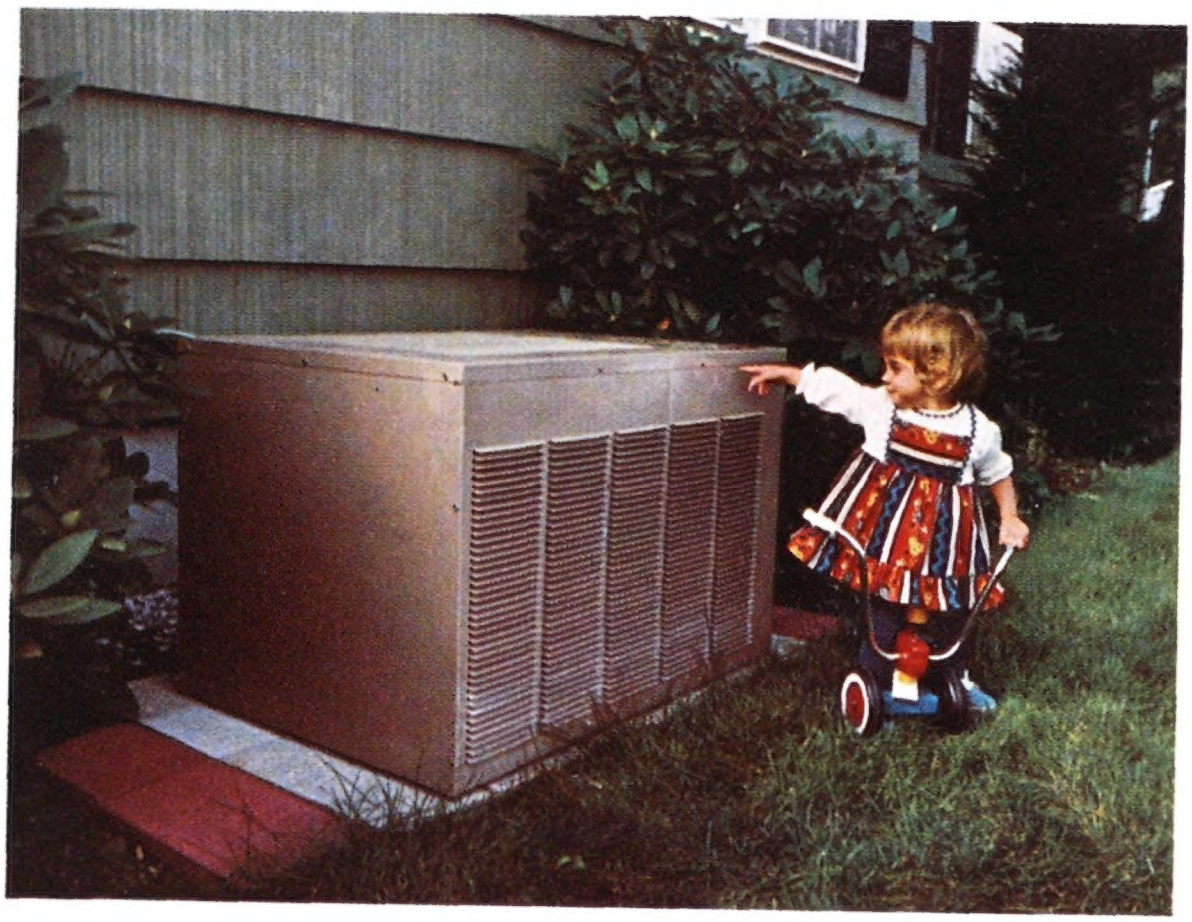
What appliance makers are doing to reduce your power consumption



One prominent manufacturer is now using rotary compressors for their new residential air conditioning systems. They estimate electricity savings of as much as 26 per cent compared to their previous systems.

A new type of ignition system which does away with all pilot lights is now offered in a well-known make of gas range. The manufacturer estimates typical gas savings at about 30%.

Little appliances can save power, too. Example: a new kind of electric clock draws so little current it doesn't even register in the home electric meter. New small motors of more efficient design are saving power in a variety of electric housewares.

A major refrigerator-freezer line is now on the market which reduces cold losses so effectively that it uses much less electricity than other models. For example, a 17-cu-ft model can save up to 43%. Over the average life span of a refrigerator (16 years) the total savings would be about $410—enough to pay for a brand-new refrigerator at today's prices.

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The view from the castle

Mankind's natural and cultural legacy,
already eroded on many sides, is
now threatened by international politics

UNESCO (United Nations Educational, Scientific and Cultural Organization) by its very name stands for something particularly precious these days. Since its beginnings in 1945, it has represented the interests of Man's cultural and natural heritage.

UNESCO has given birth to a number of nongovernmental organizations for the conservation of natural or cultural objects which are waging a difficult, often losing, battle to stem the indifference or neglect which seems to affect such enterprises.

At UNESCO's November conference in Paris, a resolution was passed barring Israel from the European region, and another vote cut off her modest budget. These resolutions were said to have been inspired by Arab countries which have been troubled not so much by the political confrontation over the Israeli state, as by archaeological diggings in Jerusalem by religious groups, which, by working backward in time and deeper into the earth, have threatened or destroyed evidences of Islamic settlements of later periods. Religious extremism, whether from Arab or Jew, as expressed in the destruction of cemeteries or houses, apparently still persists.

Archaeologists are constantly in a cultural dilemma about city excavations on old sites. Where to stop? The purists would bid for the oldest, putting the highest value on the earliest times. But the realities of the later times must also be preserved, and in context.

Now politics enters in, and history is in jeopardy. The issue did not arise when cemeteries were destroyed in 1948. Why now? If the Arabs exclude Israel's participation in UNESCO on neocultural grounds, the entire future of *truth* in international cultural and natural heritage is in jeopardy. Under this rubric, cultural history in its whole sweep, including recent times, can be decried, suppressed or altered by any later culture whose relics squat upon the older history. The Third World, with its recent history of colonialism, will be as prone to abolish all traces of the reality of that epoch, as the Mediterranean and Near Eastern and Andean plains world of South America will be to eliminate traces of old terracing, irrigation or roads which tend to show the sophisticated achievements of cultures before their own. In time, native Americans may be unwilling to allow excavations of earlier periods on later sites. One can alter the textbooks, but most people have been loath to alter the historic record of the past in the earth itself.

Now, I suppose deforestation can be condoned politically, on the basis that climax forest is only a succession stage since the last Ice Age. More sinister to me than the politicization and consequent downgrading of UNESCO for purposes of Third World politics and the current international hysteria of hatred, is the underlying indifference to scholarship, history and truth which all this implies.

In this there is no objectivity, no restraint in placing blame on only one side, when indeed it belongs to both. In the Thirties we felt the chill wind of ignorance and the onset of vandals with the burning of the books in Germany. Now it seems that the spirit of the vandals is once more pervasive and the same chill wind may blow like a jet stream overhead.

S. Dillon Ripley

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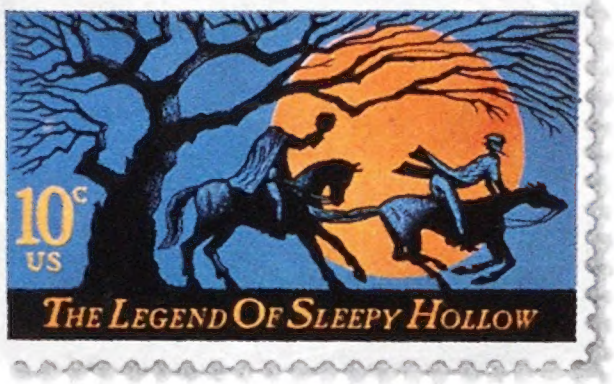

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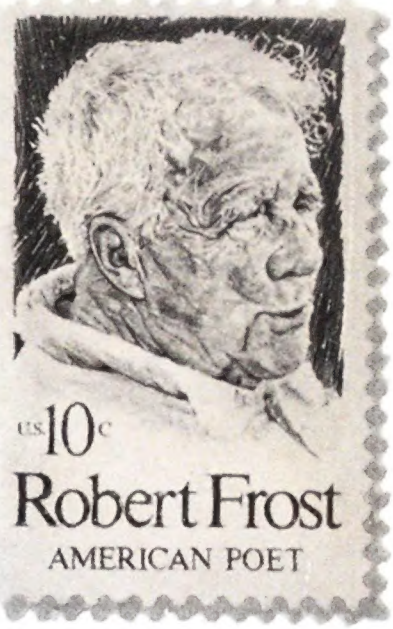

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Phenomena, comment and notes

The ear as a diagnostic tool, a dog bites back, wintry queries and a very modern dig

Archaeologists have a natural interest in garbage. They thrive on it. Many would be out of work without it. Of course, it is ancient garbage that generally interests them, the day-to-day detritus of previous throwaway cultures.

Now an enterprising group of anthropologists at the University of Arizona have taken a perhaps inevitable step and begun analyzing the garbage of modern Tucson, comparing their results with interview surveys of people's habits.

If you believed interview surveys you might think that people with middle incomes use more vitamin pills than people with low incomes. But, in Tucson, writes William L. Rathje in *Archaeology*, "the largest quantities of vitamin containers were discarded by those on a very low income scale."

Most interesting perhaps is that the traditionally frugal middle class (which, in Tucson, buys mostly cheap cuts of meat) turns out to be the most wasteful group, throwing out more than $100 worth of "edible" beef each year. Meanwhile, the wealthy—who in most archaeological digs of ancient sites are found to be the most wasteful, and therefore the best known—in Tucson waste the least. Which may be partly why they are wealthy.

The ears have it

The Mayo Clinic has published data that show a definite correlation between the presence of creased earlobes and coronary artery disease (CAD). Of 121 patients with CAD, 120 of them—men and women alike—had creased earlobes. The Mayo doctors suggest that a decreased supply of blood to the ear would very likely result, over time, in a folding of the soft tissue of the lobe.

The crease, they believe, will prove to be "a valuable diagnostic sign in conjunction with other clinical evidence," according to *Medical World News*, but there is nothing automatic about it: There are also 13 people in the entire Mayo sample of 144 who had the crease but didn't have the disease.

Earlobe crease may indicate disease.

On behalf of dogs

Dogs have come in for a great deal of criticism recently. While SMITHSONIAN is against anthropomorphism, it is hard to resist this report from an Iowa biologist, in the "Letters" column of *Science*. "My dog is an avid reader of *Science* (in fact, he was trained on it), and after reading the letters on dog control . . . he had this to say: 'The points . . . raised my hackles and gave me a dry nose. They go from canine to asinine. I am surprised that so much hate for man's best friend could be unleashed. He is blamed for destruction of the environment, inflation of tree-planting costs, and—as a solution—it is proposed that he be eaten. What a way to solve problems—eat the scapegoats.

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[Donald M.] Miller says that many animals fill dual roles as pet and as food. I can only reply that I have never yet seen a chicken fetch slippers. He says that several cultures eat dog. On this argument I could add that several cultures have also been known to eat man. Let the unthinkable remain uneatable. [John W.] Andersen seriously bemoans the cost of dog urination problems, but until he can show that dogs kill trees (as opposed to smog, insecticides, and so forth) . . . he is barking up the *wrong* tree. Finally, [Paul Bigelow] Sears claims coyotes [see p. 74] get the blame for damage done by dogs. Anyone with a nose for science knows that *Science* usually requires the evidence. Sears offers no evidence for his claim. Since dogs have been guard, guide, entertainer, and companion to man for longer than memory, I . . . conclude these writers were engaged in the human pursuit of dealing with problems by bitching.'

"That is what he said."

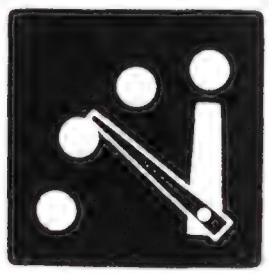
A question of seasons

Winter in the nation's capital fits no one's ideal of that season. Snow is rare, ice more so. It is alternately cold and warm. It is invariably damp. There is a lot of flu and rain and, typically, there is less daylight.

Interestingly, there is some evidence now that daylight, or more specifically the lack of it, and even more specifically, the lack of sunlight, has much to do with our health. And one can ask also if it does not have something to do with our mental health, as if the two—mental and physical health—were not related.

Certainly short days, especially short damp days, have much to do with our *mood*. So one sifts the scientific literature at hand, seeking not answers to such inchoate questions but the evidence that they are being asked. They aren't.

Instead what one finds is that the watchful little clock on the cover of *The Bulletin of the Atomic Scientists* is set at



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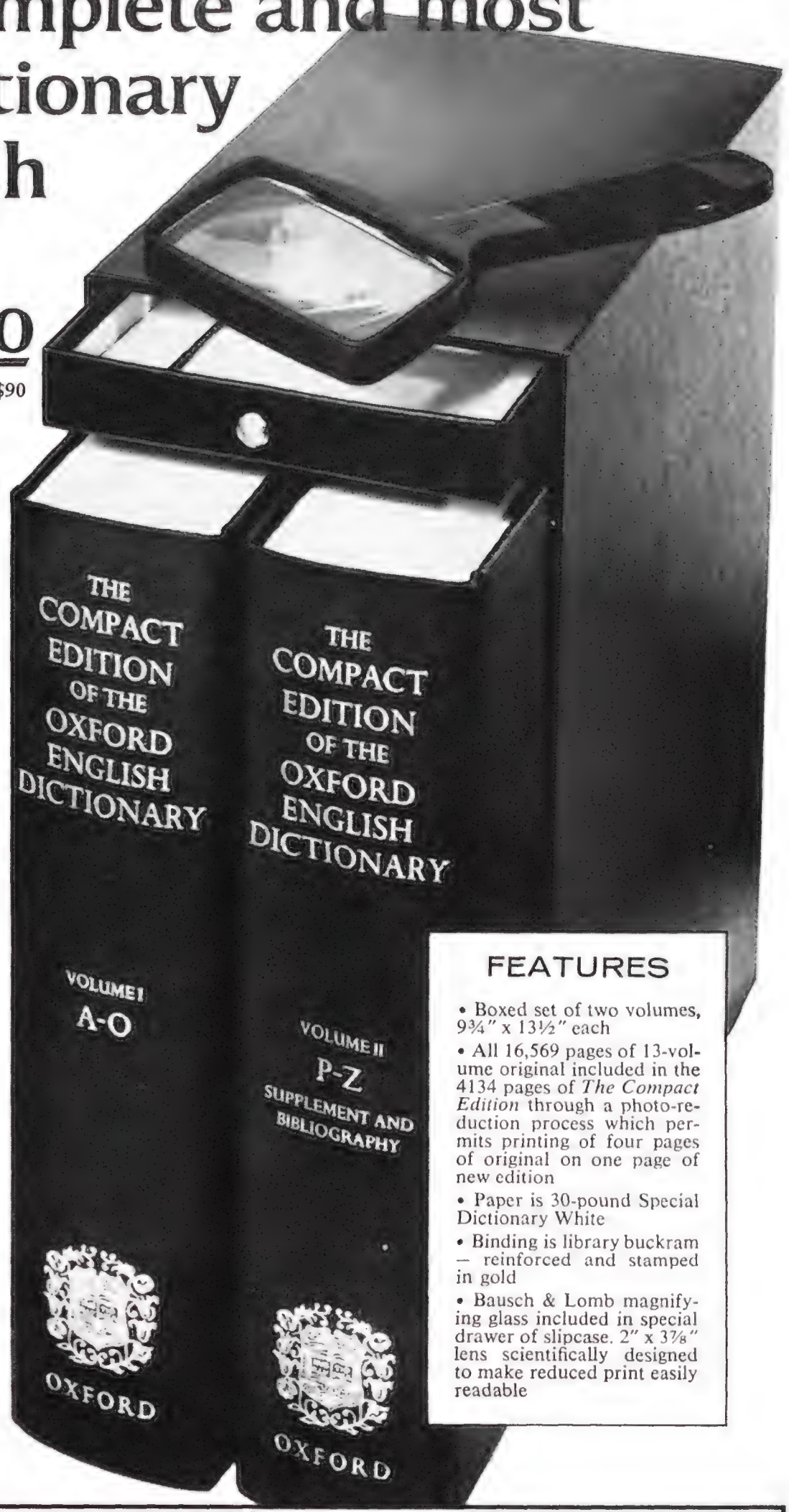

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in their bones over the state of disarmament and possible war. Without even trying, one finds some five or six articles on how the climate of the planet is changing —maybe faster than we thought—and, of all things, it is getting colder. One finds grim assessments of energy, food and population problems. One finds Dr. Philip Abelson, a leading spokesman for science, who a few years ago would have roared with outrage at the thought that scientists might not be privy councillors to the President, now seeming almost to beg:

"It would appear that the current level of decision-making might be improved if there were a slight infusion of some of the competences and values that many scientists and engineers share. We don't want to be the whole stew but . . . a little sprinkling of the salt of facts and enduring values might be useful."

A little irony? But isn't irony a wintry way of expressing enduring values?

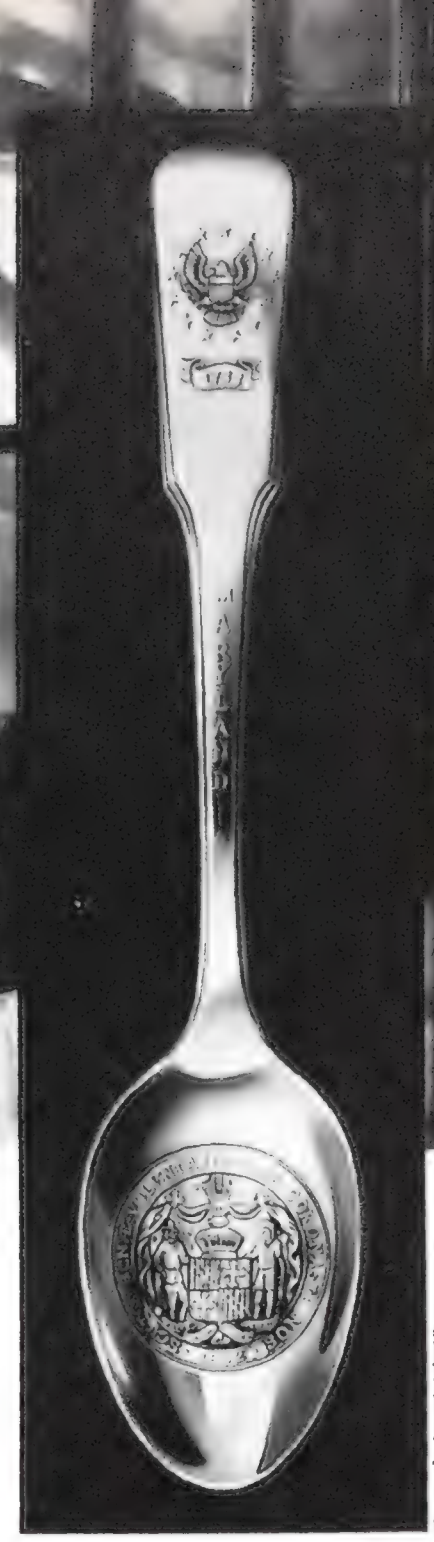
Confronting the unconfronted

Perhaps it is the nature of humans that we should confront, as well as the nature of winter, that season of little daylight. After all, mankind evolved in rather close relation with the seasons. We also evolved in daylight, but now most of us spend our days in the artificial light of offices and classrooms. What does that mean?

There are many such intimate questions one might ask of evolutionary scientists. But in the comparative grouchiness that midwinter brings on, it seems that all the questions being asked are either irrelevant (such as the left-handedness and right-handedness of mice) or too huge to answer (like the possibility that Malthusian biology will take care of the population problem). Alternatively, there are questions which might be neither irrelevant nor too cosmic. One might wonder if, for example, men are not subject to more or less monthly cycles of one sort or another—as are women. Has such a question been thoroughly explored? Would it not be in the interest of the U.S. Chamber of Commerce and the Department of Labor (and women's rights groups) to know the answer?

No one, however, seems interested.

Taking it a step further, isn't it possible that all of mankind goes, perfectly naturally, into the doldrums at wintertime? Bears do, and evolutionary theory tells us we evolved from common stock.



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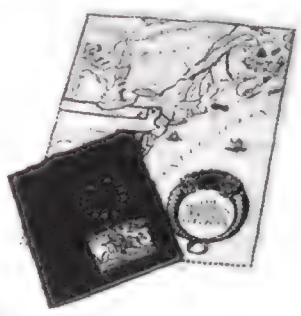

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On theories

To ask such things is not to be antagonistic to evolutionary theory, you understand. Darwin's grand scheme is certainly the most gentle and, if you will, humane of the great scientific theories, explaining as it does how all living things—and all nonliving things—are kin. (A lot of other scientific theories and laws are harder to live with. One law of thermodynamics, for instance, says in effect that thou *cannot* live beyond thy means, which is what we've been trying to do for quite a while now, and what we are staring in the face this winter.)

Given the attractive qualities of the theory of evolution, it is surprising to see this rational confirmation of the teachings of most great religions again running afoul of religionists, but it has happened. California school authorities now insist that evolutionary theory is antithetical to the teachings of certain faiths, and so the Biblical creation story must also be represented in the science (not religion) textbooks of California children. Whether this is desirable is, of course, entirely up to the people of California—but they should be reminded that there are a lot of questions for which *neither* camp has yet been able to supply satisfactory answers.

In any event, it is winter and it is possible, though neither proved nor seriously inquired into, that the short days of winter have so profound an effect on all of us that the state of the union (which is nothing more than the state of all of us) is indeed very bad, as the President said last January. But it is also possible, if winter is involved, that the state of us all will improve when spring comes. Most things do, and spring always comes. At least it always has.

JAMES K. PAGE JR.

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British Columbia, Canada.

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WINE TALK

by Austin, Nichols

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Aging in new oak is part of what makes Château Bouscaut red a truly superior product. And careful selections like Bouscaut are what makes Austin, Nichols the world's foremost importer of fine Bordeaux wines.

Letters to the Editor

Mime

Dear Sir: The January cover seems vulgar for a magazine of your caliber. We are tired of hippies. So, why advertise them with the American flag?
Mrs. Roger Brunschwig
New York, New York
Noel Parenti's costume is designed for ease of movement and color contrast and has no connection with hippies. The boots and hat symbolize the cowboy. Ed.

Plate tectonics

Dear Sir: Tom Alexander lucidly describes the plate tectonic breakthrough in geologic theory. However, I take exception to his use of "uniformitarianism" to describe the doctrine of its opponents. This concept, as defined by Charles Lyell, states only that the processes which shaped the Earth in the past are those that can be observed today. This in no way implies a belief in a uniform configuration of the Earth. In fact, it is the fundamental assumption employed by Mr. Alexander in describing past geologic events.
Erik Trinkhaus
Department of Anthropology
Harvard University
Cambridge, Massachusetts
Some early opponents of plate tectonics invoked the argument that uniformitarianism did indeed imply that the essential configuration of the Earth has not changed. This view has been losing ground. Ed.

Dear Sir: The magnetometer developed during World War II for submarine detection was the airborne fluxgate, not the astatic magnetometer. The astatic instrument was perfected in the early 1950s by Professor P. M. S. Blackett of the University of Manchester and, being a laboratory rather than a field instrument, could not have been taken about the British Isles measuring magnetism in rocks. The rocks were brought to the laboratory.
Charles K. Scharnberger
Department of Earth Sciences
Millersville State College, Pennsylvania

Dear Sir: In your Alaskan map, you have mislabeled the Kenai Peninsula as "Seward." The Seward Peninsula is some 400 miles northwest of Anchorage.
Seward V. Olson
Fairbanks, Alaska
Mr. Olson is correct. Ed.

Dear Sir: I am recommending Tom Alexander's timely article on plate tectonics to my students. Authentic "revolutions" in the sciences are few and far between, but a lot of fun when they happen. As a geology teacher, I can attest to the interest and excitement among students.

The illustrations by Richard Edes Harrison and Antonio Petruccelli are ingenious and striking, but I think the Bay of Bengal has been misplaced in the global cross section.
David R. Gardner
Department of Physics and Geoscience
Montgomery College
Rockville, Maryland
Professor Gardner is correct. It should have been labeled "Arabian Sea." Ed.

Dear Sir: Geophysicist Maurice Ewing, discoverer of the globe-girdling Mid-Ocean Ridge, was philosophical about authors such as Tom Alexander discussing his discovery without acknowledgement. "It's only when they want to *use* your discoveries they neglect to mention your name," he would say. "When they want to *refute* you they give you full credit."
Robert W. Mayer
Champaign, Illinois

Farming and energy

Dear Sir: In Wilson Clark's article on trouble in the U.S. farm system, he quotes Dr. George Borgstrom as saying: "The livestock of the rich world is in direct

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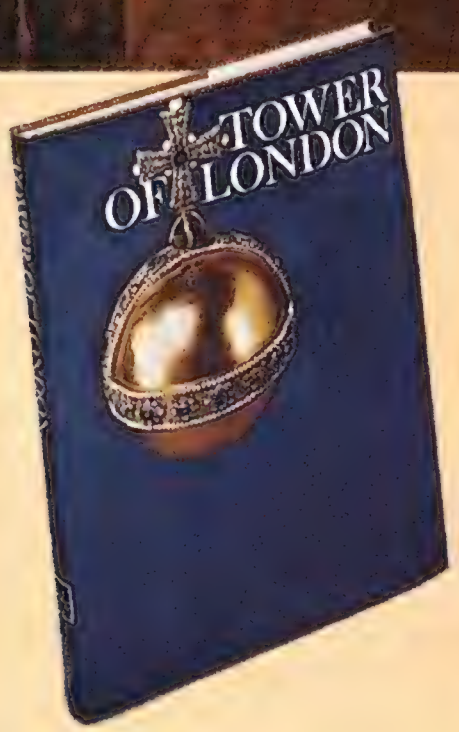

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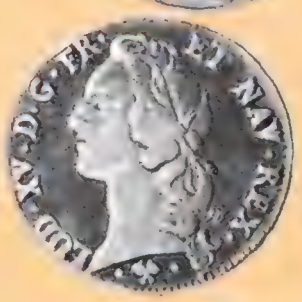

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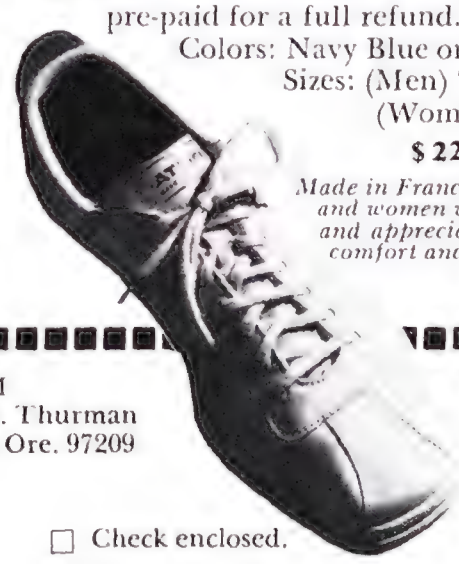

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competition with the humans of the poor world." He failed to say that the livestock of the poor world is also in direct competition with the humans of the poor world, notably in India.

Before we surrender to self-flagellation, let us consider whether the grain to make the beef we are being asked to do without will not, in fact, be given away at least in large part to make up the shortage caused by the Indians' insistence on maintaining sacred cows.

L. J. Poitras
Alexandria, Virginia

Dear Sir: In discussing starving nations around the world and how much grain the livestock in this country eats, most people overlook the fact that for the first 15 months or so of their lives calves eat no grain. They live on vegetation which clothes the rough or rolling hills where most of the cattle are produced. This land is much too rough to be farmed and would produce no food if it were not grazed by sheep and cattle.

Don't forget the horse that used to pull the farm equipment had to eat 365 days a year. The modern draft power only gets "fed" when doing productive work. Mechanical power has taken the place of expensive human labor, too.

Mrs. Dave Robinson
Coleharbor, North Dakota

Dear Sir: A captioned picture describes the operation at Monfort of Colorado, Inc. as "probably the least efficient way known to provide calories." Actually, the size and locations of the Monfort feedlots were designed for the maximum utility of nonrenewable fuels. For example: The same energy used to steam and flake the corn for greater digestibility provides both heat and light for the whole operation. The feedlots' size will make commercially feasible the production of pipeline quality methane from cattle manure without diminishing the fertilizer value of that manure for recycling on neighboring farms.

Samuel D. Addoms
Executive Vice President
Monfort of Colorado, Inc.
Greeley, Colorado

Dear Sir: Your article on the troubles with U.S. agriculture could not have come at a better time for me. Since I was a boy, I have seen farming become more

and more the way your author described it.

I am now enrolled in the University of Arizona College of Agriculture and am sad to see that the emphasis is put on learning to play some part in the corporate farm structure. I would like to know more about alternative farm methods that are ecologically sound and in harmony with our Mother Earth. If the use of windmills, methane gas generators, natural waste fertilizers and diversified crops is being taught, I am not aware of it.
Hank Gunn
Tucson, Arizona

Energy

Dear Sir: Wilson Clark (December issue) cites *Business Week* of June 8 to the effect that "one major oil company has decided that the net energy yield from oil shale is so small that they will refuse to bid on federal lands containing deposits."

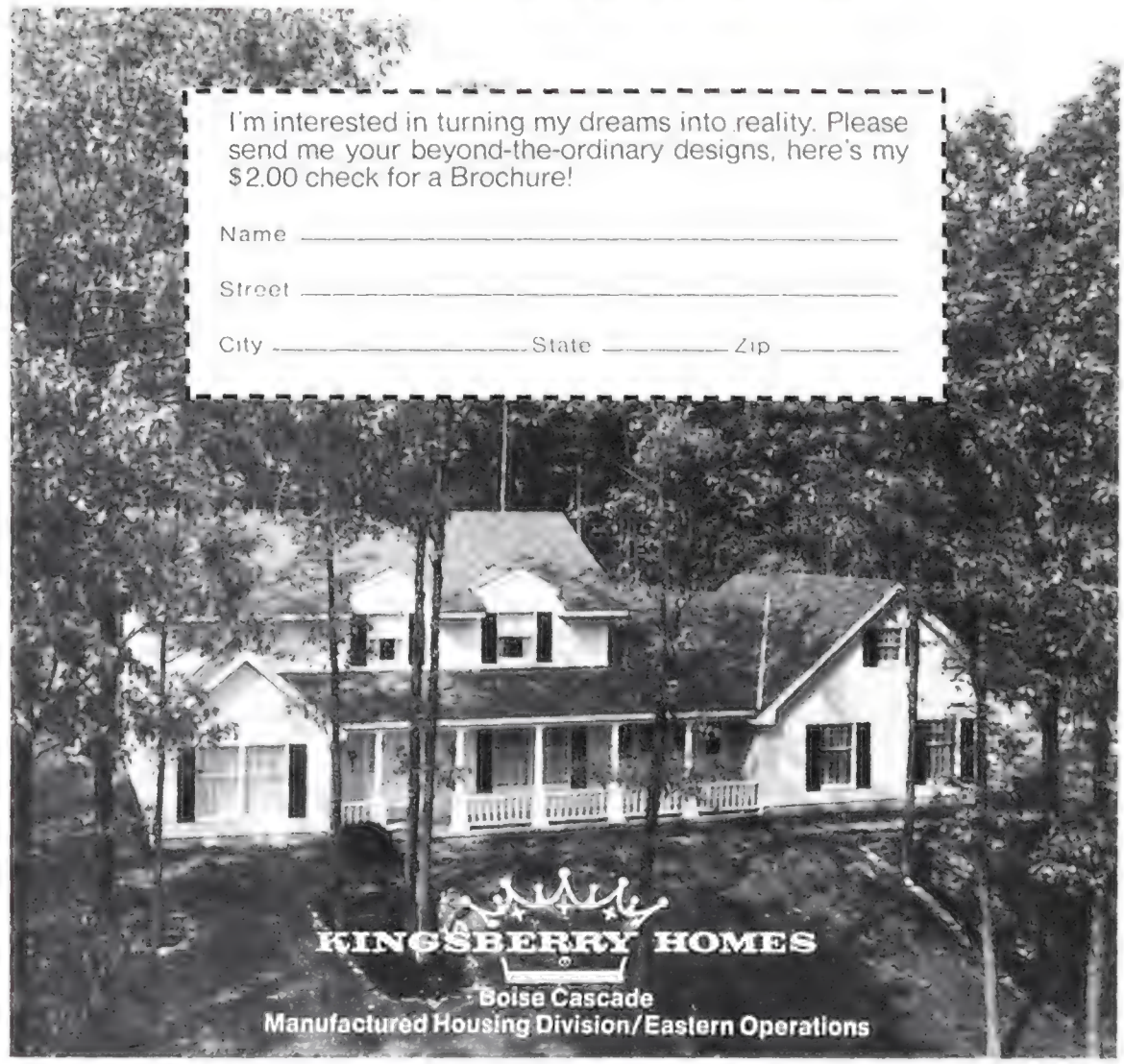
Had Mr. Clark continued his research he would have found in *Business Week* of June 22 that the same oil company disclaimed this statement and pointed to a continuing interest in shale, to its ownership of sizable amounts of shale land and to its participation in an oil shale demonstration project.
John D. Booker
Houston, Texas

The Barbary Wars

Dear Sir: It is disappointing that you should publish in your January issue such an article as "The Barbary Wars raged over tribute demands by Arabs," which, along with its historical interest, clearly conveys author Robert Wallace's prejudices against Arabs. A people selling their products, or refusing to, is clearly different from piracy or enslaving citizens of our country. He also failed to include the Persians, the Venezuelans, Mexicans and, alas, the Canadians with whom we deal.
Charles R. Bishop
Los Angeles, California

Dear Sir: The rulers and corsairs of the North African states, with the exception of Morocco, were not Arabs. From the 16th century until the arrival of French and Italian colonial rule, Algiers, Tunis and Tripoli were under the rule of Turkish elites and formed part of the Ottoman Empire. The corsairs themselves came from a variety of backgrounds, but the

Kingsberry Homes speak for themselves, with room to spare. Listen.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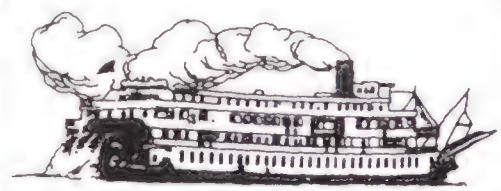

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outstanding figures were either Turks or European renegades.
Jerome P. Weiner
Chevy Chase, Maryland
While the ruling class was Turkish, the corsair crews were composed of Greeks, Turks, many Arabs, Sicilians, Moors, Berbers and Europeans. The correct term would be Muslim corsairs since the thing they had in common was religion. The population of the Barbary States was predominantly Arab and Berber, with cities overwhelmingly populated by Arabs and mountain lands with Berbers. Ed.

Dear Sir: Your implied assertion was that the Karamanli Dynasty was of Arabian origin. It was of Turkish descent.
Edward A. Raleigh
Stockton, California
Mr. Raleigh is correct. Ed.

Dear Sir: This article seems calculated to make Americans think of what Robert Wallace calls unthinkable—the use of military force. He rattles a particularly noisy set of sabers in his closing lines, where he describes Decatur "who cowed the Arabs and ended the tribute forever. Or so he thought then."
Helen Fleming Seebach
New York, New York
There was no intention on the part of the author or of SMITHSONIAN *to advocate American military force in the Middle East or elsewhere.* Ed.

Dear Sir: Is it fair to William Bainbridge to leave the impression that he was a bungling failure? Later he was commanding *Constitution* when she received her famous title "Old Ironsides" at the defeat of the British *Java* in the War of 1812.
M. R. Davison
Washington, D.C.

Medicine shows

Dear Sir: Your article, "Medicine shows duped, delighted," is a reminder that these potion peddlers have gone to their Valhalla, but they have been reincarnated in the form of miracle diet aids, aspirin and cough syrup concoctions. We have merely exchanged the parade of burlesque buffoonery for 30- and 60-second commercials on bad breath, sleepless nights and underarm odor.
Jeryl R. Davis
Lexington, Virginia

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Threatened plants

Dear Sir: In your article on the U.S. plant census there is a confusion between the captions for *Calochortus obispoensis* (mariposa lily) and *Amoreuxia wrightii*.
Mrs. Alison Carter
Sandy Hook, Connecticut
Mrs. Carter is correct. The captions were inadvertently reversed. Ed.

The view from the castle

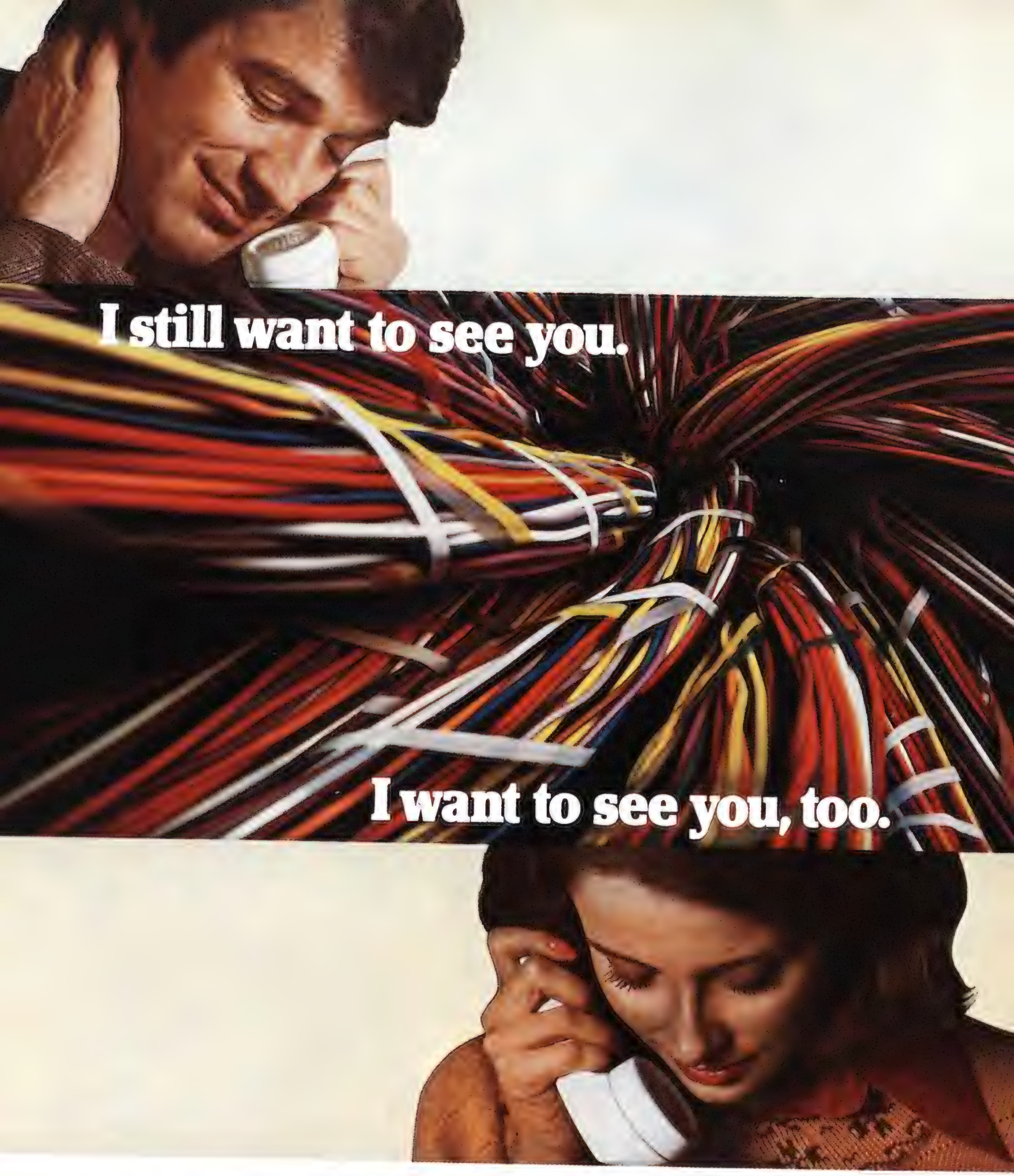
Dear Sir: Secretary Ripley's concern for where Bicentennial visitors will stay, eat and park brings to mind the "Bed & Breakfast" accommodation so frequently found in Britain. It would be nice if Washington area residents were to provide such accommodations. A central referral system could be arranged.
Ulrike Wilson
Washington, D.C.

George Washington's swords

Dear Sir: In connection with your article on George Washington's swords in the February issue, I was invited by the Bicentennial Society to purchase a replica of Washington's inaugural sword reproduced by Wilkinson Sword Limited of London. One of the selling points was that it is "quenched in whale oil." It is immoral to kill an intelligent being in order to make a trivial memento.
Robert B. Egbert
Hanover, New Hampshire
The Wilkinson Sword management reports that the last time they bought any whale oil was 20 years ago (then acceptable) and they still have enough left to last ten years. Meanwhile, they do not propose to buy any more whale oil. Ed.

Black hole model

Dear Sir: A TRW advertisement in SMITHSONIAN showed an artist's conception of a black hole accretion disk model of Cygnus X-1. We erroneously attributed the pertinent calculations to Professor Kip Thorne of the California Institute of Technology. Dr. Thorne informs us that the key calculations were carried out by research groups in Moscow and Cambridge, England. We apologize.
Ken Moritz
Special Projects Manager, TRW
Redondo Beach, California



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200 years ago this month

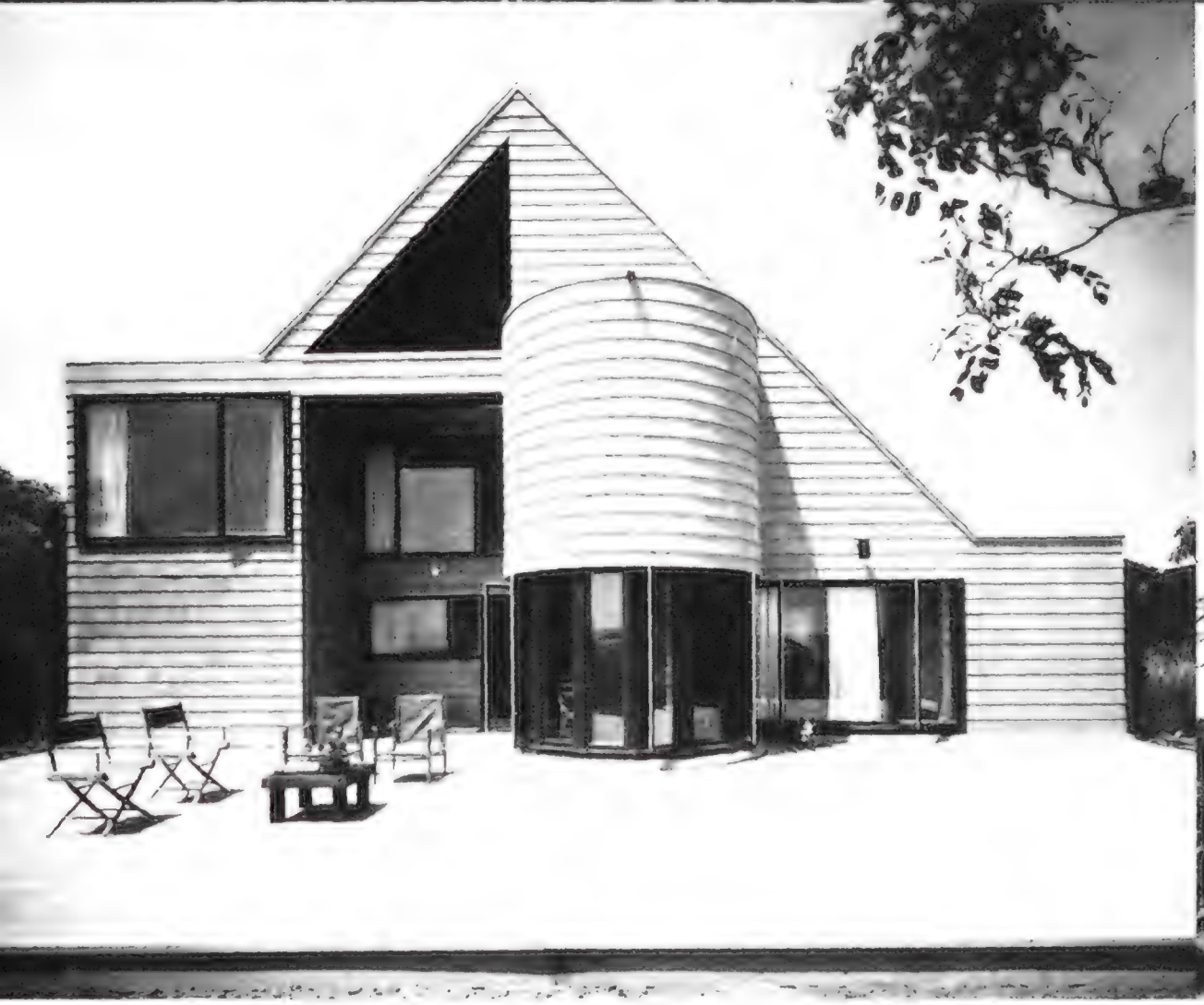
Revolutionary spirit finds a voice in Patrick Henry

MARCH 1775

Late winter is miserable in Virginia—a final fling of bitter wind, sleety rain, soggy snow and half-frozen mud before the first bluebird arrives and wisteria buds fatten and burst. The warming has begun by the 20th of this month when a convention of county delegates meets in the little village of Richmond, at the falls of the James River, safe from interference by the royal governor, Lord Dunmore. St. John's church is the only building large enough to hold the convention.

On the fourth day of the meeting there is the business of acknowledging a petition that the assemblymen of the islands of Jamaica have sent to King George, seeking settlement of the troubles in the mainland Colonies. The Virginians make their bow to the Jamaicans, adding that they yearn for "those halcyon days when we lived a free and happy people."

Then Patrick Henry, famed as the most fiery orator among the burgesses (below),



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offers resolutions about beefing up the militia. And, rather abruptly, he launches into a speech that stills the shuffles and coughs, fills the little church with tension and fires the minds of Washington, Jefferson and other delegates.

Jefferson has known Henry for years and greatly admired his oratory, though he rather doubts the scholarship behind it. A decade ago, Jefferson heard young Henry make his dramatic "treason" speech against the Stamp Act. Rumors are afoot that he carries a personal burden, for his wife is said to be mad. If so, he hides his despair when he rises before the burgesses in St. John's.

Instead of his usual approach—a studied backwoodsy ingenuousness—Henry gets right to the point: "The battle, sir, is not to the strong alone; it is to the vigilant, the active, the brave. . . . There is no retreat but in submission and slavery! Our chains are forged. Their clanking may be heard on the plains of Boston! The war is inevitable—and let it come! I repeat it, sir, let it come"

Typically, he uses the reference to slavery, so dreadfully meaningful to every American. The device has not gone unnoticed across the Atlantic. Dr. Johnson has just pointed out in his newest work, *Taxation no Tyranny*, the paradox of all this talk of liberty coming from the "drivers of negroes."

"It is vain, sir, to extenuate the matter," Henry continues. "Gentlemen may cry, Peace, peace! but there is no peace. The war has actually begun! The next gale that sweeps from the north will bring to our ears the clash of resounding arms! Our brethren are already in the field! Why stand we here idle? What is it that gentlemen wish? What would they have? Is life so dear or peace so sweet as to be purchased at the price of chains and slavery? Forbid it, Almighty God—I know not what course others may take; but as for me, give me liberty, or give me death!"

The gale from the north that Henry expects does not come bearing Earth-shattering tidings this month. George Washington returns to Mount Vernon to wind up the winter's affairs. He has been seeing to his western lands and managing things for dependent friends and relatives, including his ill-tempered mother in Fredericksburg. He has also been training the Alexandria Independent Company and puzzling out how to combat the chronic shortage of ammunition.

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Modest as he is, Washington cannot help considering that he may command a larger body of troops before long—possibly all the Virginians. After all, who else is there? The patriarch of the Byrd family (even now, in 1775, a power in the colony) is a Tory. Andrew Lewis, conqueror of the Shawnees at Point Pleasant last October, still lacks experience and also the necessary, well, *polish*. There is a strange English general, Charles Lee, mysteriously in America and apparently destitute (he recently hit Colonel Washington for £15), but, honestly, he would not have the same chance as Washington.

The Colonel has already suggested that special units be formed, garbed in hunting shirts and armed with rifles, not the usual wretched fowling pieces.

Up in Boston, people are thankful for the mildest winter in decades—the Charles River doesn't even freeze over. With 11 British regiments stationed in the town and an embargo laid upon it, the benign weather is a great blessing.

On the fifth of the month, townsfolk meet at Old South Church to mark the fifth anniversary of the Boston Massacre. Samuel Adams is moderator; Dr. Joseph Warren is orator; the building is packed to hear an emotional—and less than accurate—description of the bloodshed on March 5, 1770, which resulted (though this is not mentioned) from the stupidly daredevil stunt of baiting a British sentry.

Warren has not yet arrived when some 40 British officers show up, obviously looking for trouble. They have had a confoundedly dismal winter, for Gage has put the troops in tents on the Common in order to avoid the ructions of billeting them. The restless young officers, sons of good families, eager to find a little glory, have been revolted by Boston food, spurned by Boston girls, half-frozen by Boston weather (even though it has been easier than usual) and finally frustrated by strict restraints against lashing back at Boston insults. Here on this fifth anniversary occasion, they feel, there may be an excuse to get back at these unclean New England townsfolk and the sniffing pedagogues who control their minds.

One British ensign comes with eggs to throw as soon as the first treasonable word is uttered. Unfortunately, he slips on the ice and not only wrecks his ammunition but also his knee. The 40 arrive in a black mood, and Sam Adams, sensing this, shows them the best seats.

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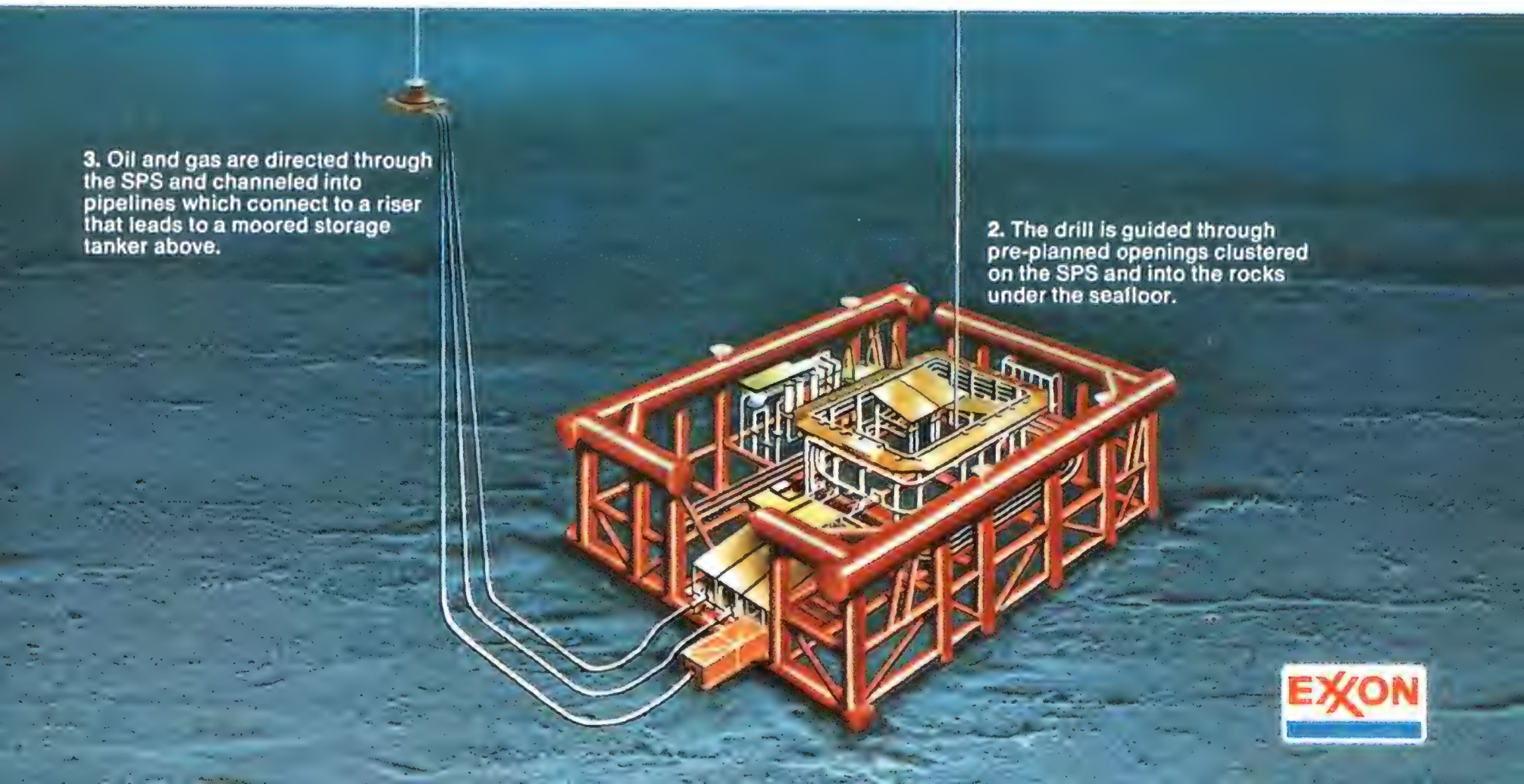
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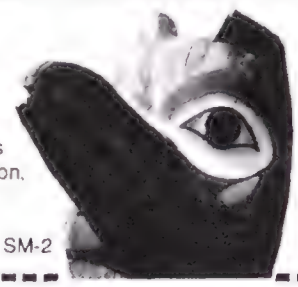

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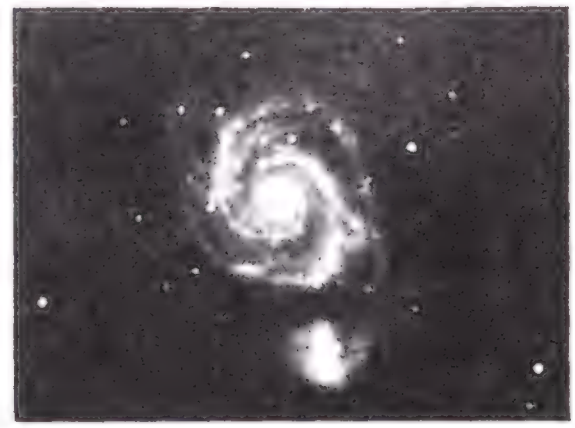

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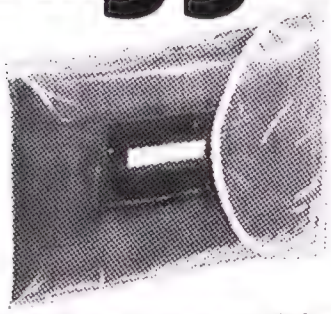

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Warren speaks well—but very carefully—about the massacre. Sam Adams follows with a note about next year's celebration, but he forgets himself long enough to call it the "bloody" massacre. The British officers rise from their pews shouting "Fie! Fie!" The crowd in the gallery thinks they are yelling "Fire!" Being nervous about that, most take to the gutter pipes and slide to the street. A detachment of redcoats is passing by, and what with the fifes and drums and shouts and barking dogs, the entire celebration ends on an almost good-natured note.

In London, Parliament passes a Restraining Act, aimed at New England. It is to keep fishing vessels from operating on the Grand Banks of Newfoundland, where the cod have been an endless source of food since the early 1600s. Without fish, Boston's masses would starve. Cod costs about tuppence for a 12-pounder. Shad is considered a poor man's fish and you can buy two for a penny. The Yankees have developed a fishing technique all their own—each man fishing on "his own hook" and getting paid for what he brings home, instead of splitting the money for the whole catch.

Fish is the inevitable Saturday dinner dish in New England, and fishermen are excused from militia duty. Seafood is popular elsewhere, too. New York's waters produce lobsters five to six feet long. And in the Chesapeake, foot-long oysters are not uncommon.

In Britain, Adam Smith is putting the finishing touches to an opus inquiring into the origins of the wealth of nations. Edward Gibbon is fascinated with his research into the last days of the Roman Empire and is contemplating a book. James Watt is working on a steam engine. Recruiters roam the country lanes to fatten the king's regiments. A hundred keels are laid for new warships.

And in the village of Lexington, a few miles northwest of Boston, Captain John Parker, commanding the local militia, receives orders from the Provincial Congress on the 30th: ". . . Whenever the army under command of General Gage, or any part thereof to the number of five hundred, shall march out of the town of Boston . . . the military force of the Province ought to be assembled. . . ."

EDWARDS PARK

Next month: Lexington and Concord, the final installment in this series on the prelude to the Revolution.

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On narrow ledge overlooking the Danube's Iron Gate archaeologists uncovered remains of city more than 7,000 years old, with regularly laid out trapezoidal houses and floors made of substance like cement.

By Robert Wernick

Danubian minicivilization bloomed before ancient Egypt and China

Mankind's first monumental sculpture, town planning 5,000 years before the Greeks—both occurred in a unique Yugoslavian site

Photographs from Yoichi Okamoto and Srpska književna zadruga

Dragoslav Srejović, the Yugoslav archaeologist who discovered the ancient city, arranges rocks in reconstruction of city, working beneath a corrugated metal roof that was erected to protect new site.

In the winter of 1940, the worst in memory, the Danube froze solid in the gorge of the Iron Gate between Yugoslavia and Romania. The pressure of the ice weakened the banks in many places and, when the thaws came, huge chunks fell off into the stream. One of these left a fresh gash on the Yugoslav side of the river, opposite the great whirlpool known as Lepenski Vir. Some local peasants, making their way over a goat path along the cliffs, noticed something odd about the gash: Several feet down, there were what looked like layers of cement floors sticking out. They reported this strange sight to the authorities.

But peasants in the Balkans are always reporting amazing discoveries of this sort, since they have heard that there is money to be made in prehistoric finds. Besides, a world war was under way, and the authorities had other concerns at the time. The peasants' report was filed away in a drawer in Belgrade. Belgrade was later bombed by the Germans, grass and brush recovered the riverbank, and one of the great archaeological discoveries of our time had to wait another quarter of a century.

In this scale model of the original site, one sees the regular placement of the more or less fanshaped dwellings, creating alleyways and plazas. In some of the dwellings' floors small hearths can be perceived.

One of 20 heads carved out of stone, very likely the first monumental sculptures in the history of Man, is only slightly smaller than the skull of one of the Mesolithic inhabitants of the riverside city.

In 1965 Dragoslav Srejović, who had been six years old in 1940, was a bright young assistant professor of archaeology at the University of Belgrade. The Yugoslav and Romanian governments, each looking for independence in matters of energy, had just signed an agreement to build a giant hydroelectric dam which would back water up for more than 60 miles and turn the Iron Gate area into a lake. Lepenski Vir, about halfway up the gorge, was one of the sites he visited to determine whether there were any ancient remains that would justify a digging expedition before the waters rose.

There was nothing unusual on the ledge when he first came to it. Through the thick underbrush, he could detect the remains of a Roman road and watchtower, and fragments of pottery made by a Neolithic people who had spread over the Danubian basin in the fifth millennium B.C. Such finds are usual enough in this part of the world. The site was very cramped, measuring barely 550 by 160 feet: it was unlikely that anyone would have chosen to build anything interesting or important there.

Still, there was something odd and challenging about the spot. When the fog settled down on the multicolored water of the Danube as it churned ore-bearing muds from its bottom, Srejović had the impression of being on another planet, at least on another continent. Botanical specialists would soon

In previous issues, Robert Wernick has written about an exhibition of medieval tapestries and the English actress Fanny Kemble's life in America.

Seen from new site, a tanker moves slowly through the Iron Gate. The river was dammed to produce electricity; the rising water has obliterated the whirlpool known as Lepenski Vir.

point out to him that the vegetation at Lepenski Vir is indeed quite different from that growing on ledges and in gorges only a few miles away. Located on a north-south loop of an east-west gorge, this site is sheltered from all destructive winds: the cold ones from the steppes as well as the searing sirocco from Africa. Snow rarely falls here. As a result, it is what botanists call a refuge area, where plants have survived that were killed off elsewhere in northern Europe thousands of years ago and can now be found only on the shores of the Mediterranean.

Srejović decided to dig. That summer, on a shoestring budget with a workforce of two students and ten pick-and-shovel laborers, he began scooping up and examining the earth.

Just beneath the surface he found what he had expected: traces of Roman military occupation, and below that objects that could be identified as belonging to the Starčevo culture, a primitive people believed to have been the first in the Danube valley to have scratched the ground to plant a little wheat and barley, and to have begun the domestication of wild cattle and goats.

The Starčevo period stands at the dawn of the Neolithic or New Stone Age in this part of the world (roughly, the first half of the fifth millennium B.C.). Anything beneath it therefore belongs to the Mesolithic, or Middle Stone Age, regarded as the dark age of prehistory. It was a period which in Europe extended for about 3,000 years between 8000 and 5000 B.C. The climate was harsh, game was elusive, and mankind was reduced to a few bands of nomadic hunt-

ers living a precarious life, passing nights in caves or in holes in the ground. The marvelous skills of the Cro-Magnon hunters, the cave-painters of Lascaux and Altamira, were forgotten. Srejović himself had excavated Mesolithic sites in southern Yugoslavia, and they all bore witness to a low, brutish form of existence. The people's health was bad, their bones show every symptom of malnutrition and exposure: rickets, rheumatism, decayed teeth. They were stunted in build and rarely lived beyond age 30.

Imagine the astonishment of Srejović and his crew when they found they had dug down to a flat surface which looked very much like cement, and which even turned out to *be* like cement, the very floors that had caught the eye of the peasants 25 years before. They are made of an amalgam of local limestone with sand and water, a level of technological achievement that would have been thought surprising in people living centuries, or even millennia, later. And the slabs were not laid down haphazardly; they were measured out carefully to form the foundations of houses, with upright slabs around them, some of them arranged so that they could support slanting poles. Presumably these poles were covered with animal hides, and the whole structure was a flat-topped tent which could shelter a family of about five people.

There were several dozen such foundations, some built one above the other, several layers thick. Over the centuries, houses had been built and rebuilt as occasion demanded. But at every layer there was a striking uniformity. There was always a house, or two houses, bigger than the others and in a central position, indicating some position of importance in the community. All faced the same direction, their wider ends toward the river, and all were built in the same shape—a trapezoid with one rounded end (more exactly, a section of a circle with an outward angle of

The sculptures and other remains were moved to this new site, higher up on the Danube's banks, and a stone

60 degrees) with fixed proportions (3:1 or 4:1) between its length and each of its sides.

There had been nothing like this in previous human history, at least nothing unearthed to this date.

In each house the same trapezoidal shape is repeated in the hearths bounded by vertical slabs, always in the eastern or sunny end of the house, in the exact center of an equilateral triangle which Srejović believes was the module on which all construction at Lepenski Vir was based.

The same sense of precision and order found in the construction of the houses is found also in their arrangement on the site. Prehistoric settlements are characteristically haphazard, the dwellings huddled together or scattered at random about the available space. Rational town planning, in the form of straight streets and city blocks, does not appear before the Greeks, a scant 2,500 years ago. But here, 5,000 and more years before the Greeks, in this wilderness village, all the houses are neatly arranged in a fanshaped pattern opening out from the riverbank. There was always an empty space, labeled "marketplace" by Srejović, in front of the bigger houses. And between all the houses narrow alleys ran in straight lines either to this marketplace or to the river's edge.

There were 20 archaeologists working on the proj-

amphitheater is being built (left) to accommodate tourists to what will surely be a major attraction.

ect by now, and 70 laborers, provided by the government with a barracks that had been used by border guards. Behind every hearth in the houses they found a flat stone with a cuplike depression in it—presumably some kind of altar. Behind the altar were, generally, two or more upright stones, at first assumed to be natural boulders picked up off the riverbank. Investigations then revealed that they were all of a reddish sandstone which appeared to come from a ravine a couple of miles away. Some of these stones were indeed natural boulders but others were found to have decorations, wavy lines or chevrons, chipped into them in low relief. Were these lines stylized representations of hair, snakes, fish scales, or were they mystical abstractions, or mere doodling?

While the argument raged during the third summer of excavation, a new and more startling discovery was made. An upright stone, of the familiar red sandstone, turned up in the largest house yet uncovered. It was almost two feet tall. A burly workman carried it down to the river to wash off some of the incrustations of the ages, and then Srejović began to scrape away the mud still clinging to the surface. All at once his chief assistant, Letica Zega, let out a screech. "It's a face!"

No one believed her at first. Every one knew that monumental sculpture entered human history in the Near East two or more millennia after the settlement at Lepenski Vir had ceased to exist. Stone Age men made little figurines of clay or stone and scratched designs on bones and rocks, but no one had ever dreamed of their making life-size statues. Nevertheless, as Srejović worked, more and more features stood out—clearly those of a sculptured head.

It was a head, but a strange one. Srejović at first thought it was a fish, and it did have oddly fishlike features. Like the 20 or so very similar works which would later be found on the site, it was goggle-eyed with a gaping mouth, very fishy. But it had a nose, the eyes were in front of the head and not on the sides, and there was a suggestion of shoulders and arms and a bust below the head. It was undoubtedly human.

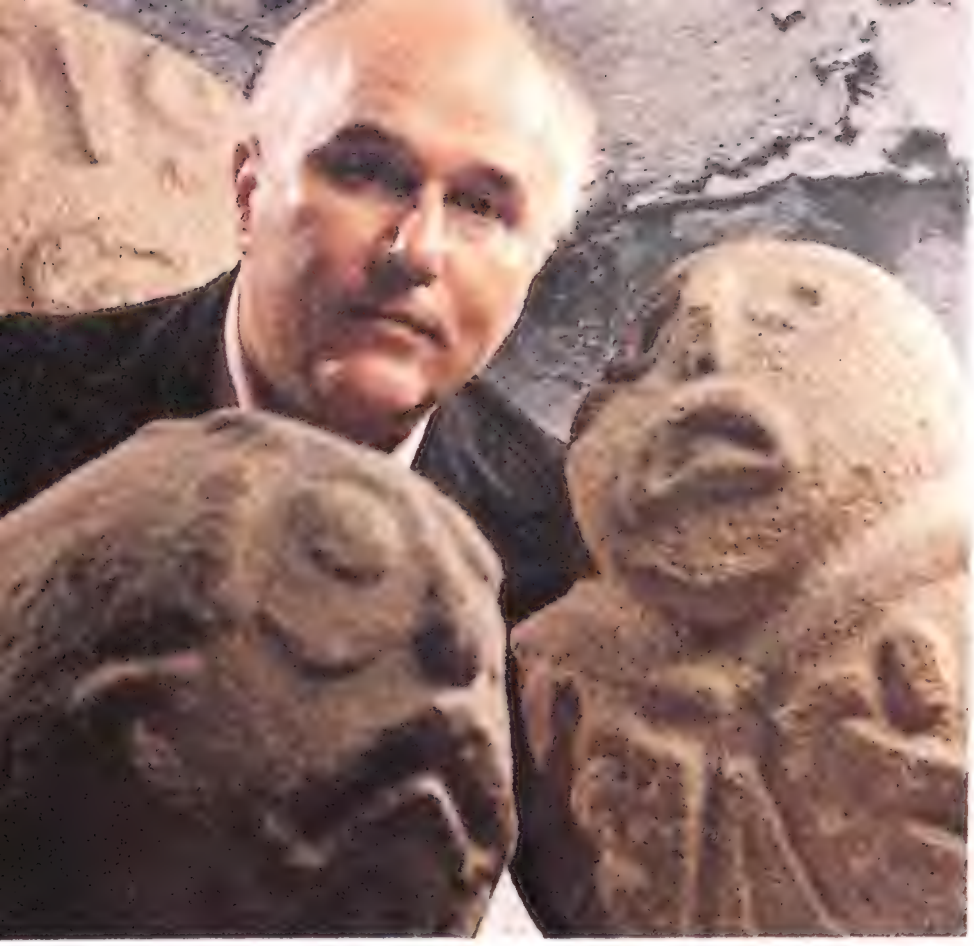
An original invention

Perhaps these statues represented gods, perhaps ancestral figures guarding the hearth. Whatever they were, so far as any one can tell today, they were the first pieces of monumental sculpture ever made on Earth. Their only rivals would be some heads found far off in Jericho in Palestine, of roughly the same epoch. But these were not carved out of stone, they were human skulls filled with clay and coated with white plaster. It was apparently here at Lepenski Vir, on this lost ledge, that some unknown genius first got the idea of creating life-size, or more-than-life-size, effigies out of solid rock.

Carbon-dating of charcoal found in the hearths covers a span of several hundred years in the sixth millennium B.C., and perhaps the beginning of the fifth. But there are no charcoal samples from the earliest layers, so there is no certain way of knowing how far back the origin of the settlement goes. All that can be said for certain is that the community must have existed a very long time to develop the cultural resources that would make such statues possible.

Sir Mortimer Wheeler, the dean of British archaeologists, says of these achievements that they make Lepenski Vir one of the few sites in the world to which the epithet "unique" can be legitimately applied. Its sculpture, he says, "enters world history substantially in its own right and without convincing parentage"; it is, in short, an original invention.

Analysis of fossilized pollen on the site shows that the climate at Lepenski Vir was colder then. Birches grew where oak and elm now cover the mountainsides. But in general the landscape must have looked much the same then as it did to Srejović on his first visit. Only it would not have seemed so tight, enclosed, foreboding to those early inhabitants as it did to him. It must have looked more like a Shangri-La, a place of peace and plenty after much hardship. Instead of end-



Srejović peers over two of the mysterious sculptures. Note the fishlike goggle eyes of the head at left.

lessly scurrying after food, they could more or less let the food come to them. There were edible berries and tubers growing along the bank, and the game animals which swarmed on the mountain could be easily killed when they came down to eat the berries. The seeds of blackberry and wild plum and wild cherry, the bones of martens, beavers, deer, wild boars and aurochs, found in the hearths of the houses, show that all these sources of supply were put to use. And there was a still better, inexhaustible one a hundred yards or so out in the river. There they could see, perpetually churning, the greatest whirlpool in all the turbulent course of the Danube through the Iron Gate. Today's Danube is polluted, and the number of kinds of fish has been markedly diminished. But in prehistoric times, and down to the early years of this century when local landowners used to fight battles over fishing rights at this spot, these waters were alive with a fantastic variety of fish.

Fish were the guarantee of prosperity for Lepenski Vir; no wonder the statues of their gods (assuming they were gods) had fishlike features. Even when the climate turned milder and they were able to replace fish with game as their staple food, they went on putting fish-faced statues by their hearths.

Once the inhabitants had settled in, time seems to have stood still in Lepenski Vir. Study of the bones found there shows that there was no admixture of foreign population; the same people remained on the spot, intermarrying generation after generation, perhaps 120 generations in all—well over 2,500 years. During all that time they remained healthy. There are no deformed or diseased bones to be found, and the women were so robust that it is hard to tell their skeletons from those of the men. They lived long, often into their eighties.

There were never many of them. The narrow ledge could not have had room for more than 20 or 25 houses at a time, each of which could have held no more than about five persons. This would hardly be called a village in most countries today, but in Mesolithic terms it was enormous, it represented a whole new dimension of human life. And though the community imported nothing, it must have exported some of its new conceptions. For at about a dozen locations on both banks of the river within a radius of some 20 miles, archaeologists have found remains of Mesolithic villages which look like rough copies of Lepenski Vir. They were smaller; they did not last so long; they had no carved stones or statues. But their houses and their hearths are trapezoidal in shape. Srejović considers that Lepenski Vir must have been a kind of cultural metropolis, a mini-Rome to which outlying groups owed spiritual obedience.

Then one day the people went away from Lepenski Vir. There is no sign of a violent end, no fire or rockslide; the settlement was simply abandoned. We can do no more than guess why they left, but Srejović is of the opinion that it was progress which killed Lepenski Vir. Sometime in the fifth millennium B.C. the "Neolithic revolution" came to the Danube basin. Man learned to grow crops and domesticate cattle. This was a great leap forward in human development, but it doomed Lepenski Vir, where space was too constricted to support successful agriculture or herding on a successful scale.

And so after a time-span that only Egypt and China compare with in the more recent world, the tight little culture of Lepenski Vir faded away.

Some 7,000 years later, in 1970, the waters rising behind the giant new dam were lapping over the ledge. By then, however, the Yugoslav government had dipped into its funds to hoist all the surviving floors and stones 60 feet up the bank to another ledge, oriented like the original one toward the east. They are still being put in place, there is still no access road, but there are ambitious plans—and one day the reconstructed ledge should become one of the great tourist attractions of that part of the world. Now the raging Danube where these ingenious people fished is a placid lake, with only a tiny ruffle on the water to mark where the giant whirlpool had been.

Though more naturalistic than those at upper left, this flat-browed head also has gaping fishlike mouth.

New York firemen clang their way through heavy traffic to one of the quarter-million alarms they answer each year. Many are false. This is one area that RAND studies.

Photographs by Ross Chapple

By Paul Dickson

Think tank brings systems analysis to the city streets

New York City's RAND Institute is involved in day-to-day problems of fire fighting, welfare, law enforcement, health and housing

When the nation's attention was first focused on the plight of its cities in the 1960s, it quickly became obvious that America had little information on the problem—let alone solutions. When the Watts section of Los Angeles erupted in 1965, the White House had to send a team into the area to find out such basics as who lived there and under what conditions.

Today the nation is moving toward an "urban technology"—verbal shorthand for a research and development apparatus and an emerging body of knowledge centered on such matters as housing, prisons, welfare and fire fighting. Relative to other technologies, it is still small, but it is nonetheless significant, needed and eagerly employed. Federal, state and local agencies are supporting a wide array of new research starts, new institutions have cropped up, and the attendant phenomena of technology—special journals, conferences and the like—have come into being.

One way to get a handle on this dynamic new field is to look at one of its focal points, a small research center working for the city of New York. Despite its size, youth and role as servant/savant to a single city, the New York City-RAND Institute has already begun to have a national impact on the way cities are run.

While the Institute is less than famous outside city-management circles, its parent RAND Corporation in Santa Monica has attracted enough national and international attention to make it the world's best-known think tank. Since the parent RAND was created in 1948, the lion's share of its work has been

New York City's own think tank

RAND staffers, with Manhattan in the distance: From the left are Georges Vernez, Robert

military research and policy analysis. So it was surprising when it ventured onto uncharted turf by responding positively to a plea from then-Mayor John V. Lindsay for some sorely needed analytical help. New York contracted with RAND to work in four areas—health, fire fighting, housing and law enforcement—and a special project office was opened early in 1968. Just over a year later a "permanent" Institute was incorporated as an independent, non-profit research center run jointly by the city and the RAND Corporation. (Since then the parent corporation has itself moved into civilian, and especially urban, research. Department of Defense work, which once accounted for nearly all of its budget, now takes little more than half.)

Now more than five years old (six if you count the earlier project office), the Institute has become part of New York's policy-making apparatus, a money-saver, an oft-tapped resource for other cities and a fairly regular source of local controversy. When Lindsay left office at the end of 1973, the Institute weathered its most important test to date: a change in city administration. From the beginning the Institute was "Lindsay's baby," and some thought that this would be its undoing when a new mayor took office. As the city's comptroller, Abraham D. Beame had been a constant critic of Lindsay's use of outside consultants, and that included the RAND Institute. And so when Beame was elected mayor, there was justified fear within the Institute that its days were numbered. Well into 1974 the fear continued, fed by persistent rumors that the ax would fall as soon as the Institute had finished working on Lindsay contracts. Then, last summer, as time was running out, the new administration announced that the RAND Institute was to stay on the city payroll and committed itself to an immediate $1 million in new contracts.

No one at the Institute denies that it worked hard and fast behind the scenes to show the new crew in City Hall what it could do for the city, but in doing so it was forced to apply its analytical ability to itself to come up with evidence of its worth. Institute President Robert A. Levine says, "Without counting spending increases averted because of our advice and other bits of conjectural accounting, we were able to prove that our work has led to actual expenditure cutbacks which have reached $17.1 million a year—far exceeding the less than $2 million a year the city has been giving us—and that the total savings could soon jump to a level of about $40 million."

As appealing as dollars saved are to financially pressed big city administrators, the real test of the Institute involves its ability to solve problems. The diversity of problem-solving undertaken since it began has been broad in both subject and technique. To get on top of water pollution problems, for example, Dutch-born staff engineer Jan Leendertse has developed a computer model which simulates the tidal

Paul Dickson, who has written a book on think tanks, has appeared in Smithsonian *with articles on remote sensing and (serious) games that planners play.*

Levine (president), Arthur Swersey, Mary Queeley, Richard Mudge, Warren Walker and David Lyon.

dynamics of Jamaica Bay. The model is not only used to study the bay as it is, but to test the impact of new developments before they occur, such as a hurricane barrier proposed by the Army Corps of Engineers. The city hopes the barrier can be placed in such a way as to assist the bay in flushing itself of pollutants. Leendertse is helping the U.S. Geological Survey create a similar model of Tampa Bay in Florida.

The Institute's work in other areas is more prosaic, but no less relevant. Its work for New York's Department of Corrections, for instance, has included a statistical review of prison suicides which revealed that these tragedies occur most commonly during the first ten days of confinement; this led to a new prevention program aimed at new inmates. An inventory control system for prison food, according to the researchers who created it, could reduce food costs by some $400,000 a year. An inexpensive, cigarette-pack-sized transmitter for prison guards that sends a call for help when triggered in one of several ways—if the guard is knocked down, for example—has been developed.

Because this research center deals with so many contemporary concerns, one is tempted to jump around: a plan to "enrich" the lot of civil servants by giving them greater control over their jobs, schemes for breaking the logjam in the courts, reforms in hospital emergency rooms and the use of mathematical techniques for better deployment of patrol cars. Instead, let us focus on one area to see what has been done and to what effect. Its approach to fire fighting serves as well as any to portray the Institute at work.

The New York City Fire Department had been pleading for some outside analytical help for several years before RAND came to town, so it was not surprising that it became one of the Institute's first clients. Asked to look for new techniques in an area which has been pretty much overlooked by modern technology, researchers quickly came back to the department with "slippery water." When water is spiked with minute quantities of a cheap, nontoxic, long-chain polymer called polyethylene-oxide, it reduces water turbulence in a fire hose, thereby making it flow farther and faster. A public display of the technique in 1969, a little more than a year after RAND went to work for the fire department, showed that an ounce of the chemical added to 200 gallons of water increased the flow by 70 percent and allowed the water to travel twice the old distance. In practical terms this meant that smaller, lighter hoses can "throw" the needed amount of water the necessary distance while offering greater maneuverability. At present 81 pumpers are equipped to mix "slippery water" and all new equipment will be similarly outfitted.

While other results have not been so patently dramatic as "slippery water," many have actually been more important to the city, especially those relating to the deployment of fire companies. The department asked the Institute to suggest ways to cut the time from the moment an alarm was sounded to the time the first truck arrived. The number of alarms was increasing dramatically all over the city (from 85,000 in 1959 to 230,000 in 1968) mainly because of an increase in false alarms. As many fire administrators already felt that about 75 new trucks would soon be needed to keep up with the demand, the answer they did not want to hear from RAND was to add more men and equipment.

Priority system for alarm boxes

In response, the Institute took on the problem by breaking it up and attacking its various components. An analysis of alarm boxes showed that certain boxes were almost always the source of false alarms, while others were hardly ever triggered without cause. This led to a priority system based on the history of each alarm box which dictated that one less truck respond initially to alarms from boxes where genuine emergencies were the exception. An electronic system was created to help dispatchers relocate units chess-fashion

A policeman enters a building to check on a robbery report; accompanying him is a RAND analyst.

for maximum protection. When, for example, a dispatcher tells the computer that he has just moved Ladder Company 55 to a major fire in the Bronx, it tells him to move Ladder Company 29 to 55's house so as not to create a weak link in the system.

The payoff from these developments has been to cut the work load, create a more even distribution of services and improve effectiveness in responding to alarms. Not only has the addition of new units been forestalled, but 14 fire companies have been closed down and another 7 relocated.

Although it has not been as dramatic as fire research, work in other areas has produced results. A lead poisoning study led to an immediate expansion of New York's prevention program, which in turn led to the identification of an additional 1,600 children who had been poisoned but who were caught before the onset of permanent brain damage. A look at disease patterns in the city showed that public health programs were making headway in treating one type of VD but losing on another, which led to a redirection of effort. One of several new procedures developed for the police department netted a reduction in the average time for booking a suspect from eight to two hours (a time-saving equivalent to adding 440 patrolmen to the force).

No payoff on welfare

On the other hand, in some areas the payoff has not been so immediate. The city's welfare caseload has tripled in the last ten years. David Lyon, director of Human and Economic Resources Research for the Institute, reports, "We've been deeply involved in this area since 1972 and are now at the point where some major questions have been answered and new policy considerations are germinating." What Lyon's department has come up with are some myth-killing findings on welfare, such as:

- The majority of able-bodied recipients go on welfare only as a last resort and look upon the move as a temporary one. This conclusion stems from specific findings that only a third of all recipients were on the rolls continuously for more than three years, while many were found to go on and off regularly.
- Almost a quarter of the adults on the rolls in New York were full-time members of the work force but still eligible for welfare because their wages were so low. Moreover, the majority of those adults on welfare who were able to work (taking into account health and family responsibilities) were actually working.
- Conventional wisdom to the contrary, it would appear that the poor migrate to New York to find work and only go on welfare after their search has proved fruitless. Only 23 percent of those migrants who have been in the city for less than two years are on the rolls,

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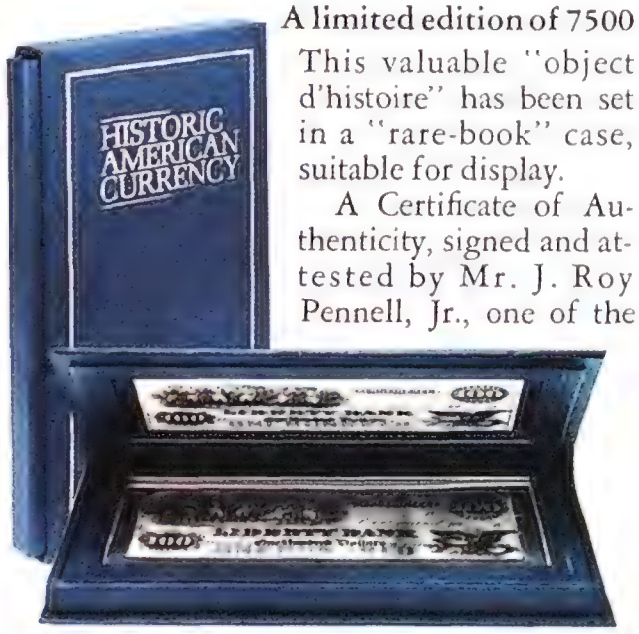

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compared with 61 percent of those who have been there for four years.

• Nearly 700,000 people in the city would be eligible for welfare but have not applied for it. Most striking is the fact that a mere one-third of the city's welfare-eligibles over 65 were claiming their benefits. If all the unaided eligibles were added to the 1.4 million already on the rolls, the city's welfare costs would jump by a third.

• Beyond those eligible but not on the rolls, vast numbers of people are "at risk" and could easily be pushed into the eligible class by increases in the cost of living. About 30 percent of the work force in New York City have jobs which pay below $6,000 a year.

• Job-training and employment-referral programs have been ineffective. Many people are trained for jobs that don't exist; only 7.7 percent of those reporting to the state employment service actually found jobs, and most of the few that did could not earn enough to keep a family of three off the rolls.

The policy implications, local as well as national, in such findings are clear. Given the current economic picture, the acknowledged strain on the welfare system is sure to intensify. Continued cost-of-living increases could force thousands locally, and hundreds of thousands nationally, onto the rolls. Both the employed "at risk" workers and those who have been eligible but who have not applied may become the new welfare clients. Lyon says that RAND is now pointing the city in the direction of job creation—rather than job training—as a source of relief.

Not all of RAND's work has been greeted with open arms. Its welfare findings come flat up against the "able-bodied loafer" notion that some hold dear, and at the same time do little for job-training advocates. Firemen's union leaders have been less than thrilled with its efforts to limit the size of the force. An Institute police study revealed "hidden inconsistencies" in the police department's administration of internal discipline. And a housing study showed that a major housing program for moderate-income families had turned out to be a gift to the upper middle class.

This ability to strike sparks is, according to those working there, a signal of independence, and being independent is the best way to work *for* the city. It is Institute policy not to undertake studies aimed at "substantiating predetermined programs." In responding to a city agency, the Institute is not afraid to turn around and question the question. When the city's Health Services Administration asked where it should locate new hospitals, the Institute came back with the unexpected conclusion that not only was there no need for new hospitals, but that there were so many unused beds in existing city hospitals that 1,200 of them could be "mothballed" without harm.

As the Institute's 50-odd people continue to work on New York's problems, a ripple effect is becoming evident. It is working directly with seven other cities—as close as Yonkers and as far away as Denver—to pass on what it has learned about deploying emergency vehicles, while many other cities are using the research without direct collaboration. At last count, "slippery water" had been picked up by 20 American cities. Also, the ripples seem to be moving beyond the United States. Administrators and researchers from Tokyo to Toronto have come to the Institute. It has worked with the British Local Government Operations Research Institute, and it will help start up the Urban Research Section of the new Institute for Applied Systems Analysis, a 20-nation think tank in Austria.

The Institute's most profound influence, however, may be on the nation's way of looking at things. It is demonstrating that analytic techniques have a role to play in dealing with street-level problems. The Institute itself may not last. Some members of the Beame administration are asking whether the kind of work it does could not be parceled out to local universities or those with research backgrounds already on the city payroll. Supporters of the Institute counter with the argument that the very objectivity that is the hallmark of the Institute's work would be lost if the work were to be performed within city agencies, and that local universities do not have sufficient staff to devote to full-time research.

Whatever happens, the Institute will have already served a purpose as a model for the conduct of urban research and development.

A fireman aims a stream of "slippery water"; addition of a chemical raises flow by 70 percent.

203

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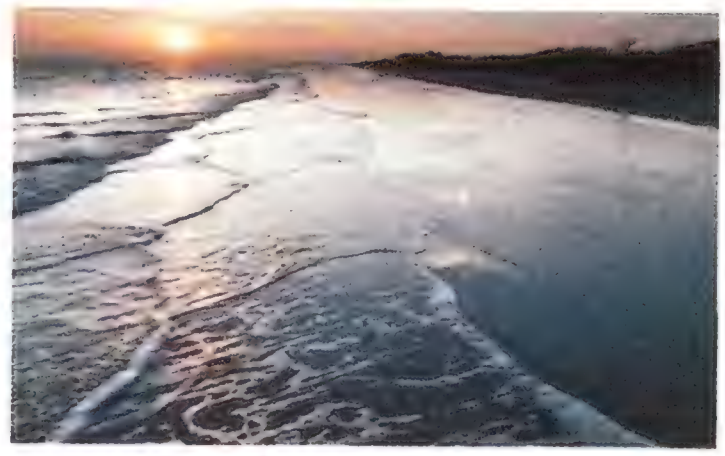

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A 1963 study of Ernst, quizzical, in his studio—
a conventional portrait of an unconventional man.

As displayed in *The Phases of the Night*,
(1946) Max's vision is as lucid as his imagery

By Piri Halasz

A modern wizard's strange dreams over six decades

One of the century's most facile visionaries,
Max Ernst, a strongly evocative painter,
is honored with a retrospective in New York

Piri Halasz, contributing editor to Art News, *wrote about Ellsworth Kelly in* Smithsonian, *November 1973.*

The Jeffrey H. Loria Collection, New York

is mysterious. Painted just after he married Dorothea Tanning, it is a nuptial celebration of home and heart. This full picture, of which a detail appears on cover, shows a "Max" owl and a "D"-for-Dorothea house.

"On the second of April at 9:45 A.M. Max Ernst hatched from the egg which his mother had laid in an eagle's nest and over which the bird had brooded for seven years," Max Ernst once wrote, in a typically whimsical mood. Ernst frequently refers to himself in the third person. It adds to the atmosphere of the disengaged, the fantastic and the slightly supernatural which are the hallmarks of his career as a painter, and the essence of the twin artistic movements for which he stands: dada and surrealism.

Ernst has always been fascinated by birds. They turn up often in his pictures, as does a half-human alter ego for himself named Loplop, Superior of the Birds. Ernst is a slight, wiry man with large, inquisitive eyes and a nose which his third wife, Peggy Guggenheim, has described as "handsome" and "beaklike." In his own

Collection Kunsthaus, Zurich

opinion, his fixation stems from the year 1906, when he was 15 in the German town of Brühl, and his pet cockatoo named Hornebom died. The same night, his youngest sister, Loni, was born. Max, as he says, "became convinced that Loni had appropriated the vital juices of the bird. The crisis passed, but a spontaneous and irrational mental confusion between people and birds persisted in the young man's imagination."

European art had a use for "spontaneous and irrational mental confusion" as the Continent emerged from World War I. America remembers the 1920s as a gay and prosperous era, but in Europe thoughtful people were dismayed by the way in which the war had disrupted the stable society they had known.

Not only Ernst but other eccentric visionaries gave voice to the general disorientation and provided a *divertissement* from it. Artists, poets, musicians and moviemakers expressed themselves in baffling but engaging new artistic forms. From 1916 to about 1922, the leading agitators called themselves dadaists; they relied on the deliberate illogic of chance as an esthetic principle. Then, in 1924, the surrealist group was organized, and dedicated itself to exploring the bizarre associations of dreams.

Though Marcel Duchamp, the French dadaist, and Salvador Dali, the Spanish surrealist, may be individually more widely known, Ernst is the only creator whose career spans both movements. What magic he has wrought, not only with birds, but also with humans, jungle flora and the whole extraordinary range of his imagination, may be seen at Manhattan's Solomon R. Guggenheim Museum (founded by Peggy's uncle), where a major retrospective of Ernst's work, containing more than 300 paintings, sculptures, collages, constructions and illustrated books, is on view through April 20. It encompasses 68 years of vigorous output—for the artist, at 83, is still hale and active at Seillans, in southern France.

Galerie A.F. Petit, Paris

Opposite: In the Thirties, with Hitler in power, Ernst reflected his feelings in a series of canvases he titled *The Entire City*. This is a typical example.

In a different mood, ten years earlier, Ernst amused himself, and others, with such works as *Histoire Naturelle*, a fantasia for a child.

Probably, of all of Ernst's work, Americans are most familiar with the dark, miasmic dream forests he was painting when he fled to the United States at the onset of World War II. But he is also a master of fabulous beasts and lithe, bird-headed nudes, depicted while he was in France and Germany between the wars. Still earlier, Ernst was pioneering the art of collage; his sculpture is also memorable.

In fact, as William Rubin, curator of painting at Manhattan's Museum of Modern Art has put it, "in the extraordinary range of his styles and techniques, Ernst is to dada and surrealism what Picasso is to 20th-century art as a whole." Diane Waldman, the curator of the Guggenheim who organized the current exhibition, also compares Ernst to the master cubist. "If Picasso is the heroic figure of the classical, rational abstraction of the epic years of the early twentieth century," she writes, in her catalog essay, "then Max Ernst exemplifies those aspects of the countervailing movements of twentieth century art in which the mysterious and irrational predominate."

In 1909 Max enrolled at the University of Bonn, planning to study philosophy and psychiatry. However, he had already started painting droll variations on the prevailing styles of cubism and futurism. By the time he left the university, he knew that he wanted to be an artist.

"Seeing," he later recalled (speaking, for a change, in the first person), "was my chief preoccupation. My eyes were greedy, not only for the amazing world which assaulted them from without, but also for that other mysterious, disturbing world which surged up and melted away in my dreams."

Then came World War I. Ernst was drafted and spent four years as an artillery engineer. While he was still in uniform, dada was springing into being--with Duchamp in America, and even more notably with a group of young incendiaries in Switzerland. Nightly,

In 1943, intrigued with the plastic possibilities of geometry, Ernst painted *Vox Angelica*, a tribute to Dorothea and a resumé of his styles.

in Zurich's Cabaret Voltaire, a poet named Tristan Tzara and his friends declaimed verse composed of satirical non sequiturs; they staged incomprehensible skits—the ancestors of the happening. Jean Arp, an Alsatian artist whom Ernst had met before the war, created curious pictures composed of scraps of paper which had fallen by chance.

Ernst managed to get an early picture of his shown at a dada gallery in Zurich. "Contrary to general belief," he has remarked, "dada did not want to shock the bourgeois. They were already shocked enough. No, dada was a rebellious upsurge of vital energy and rage; it resulted from the absurdity, the whole immense *Schweinerei* [piggishness] of that imbecilic war."

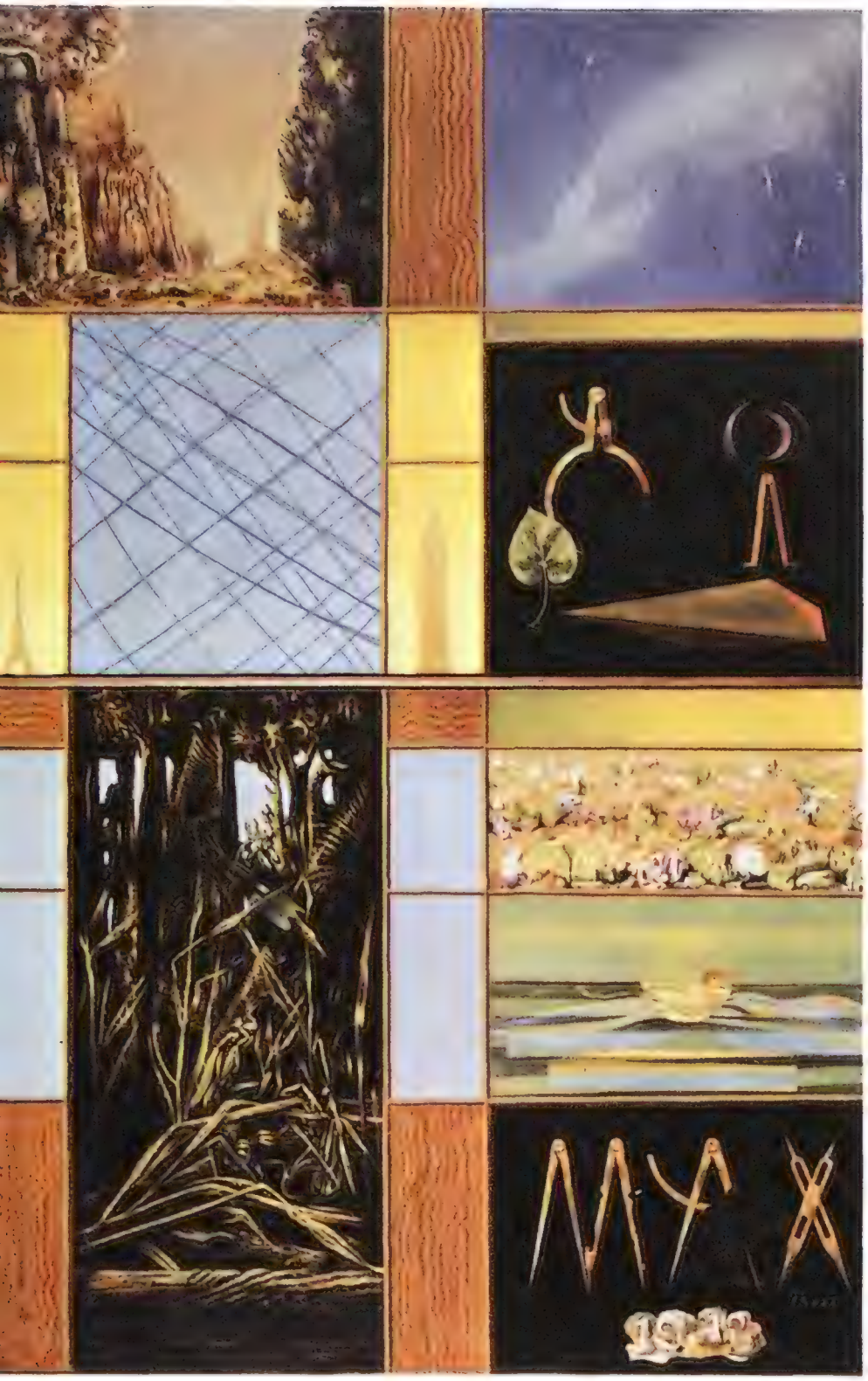
When the war ended, Max went to Cologne, pausing only to marry Luise Strauss, his university sweetheart. Ernst's work had been undergoing a transformation. While holed up in a hotel room in a Rhineland town, he had become enthralled by a catalog containing advertisements showing objects related to anthropology, mineralogy and paleontology. He experienced "a hallucinating succession of self-contradictory images—double images, triple images, multiple images—each laid on top of the other with the imperious rapidity which characterizes our memories of a love affair or the visions which come to us when we are half-asleep and half-awake." He tore out pages from the catalog and began to recreate his hallucinations by painting or drawing heads and tails on the pictures to form strange new animals, set in equally strange landscapes.

At the same time he was experimenting with other methods of collage, juxtaposing fragments of newspaper advertisements and photographs. Ernst wasn't the only one to develop collage; Kurt Schwitters, in Hanover, and the Berlin dadaists were simultaneously doing it. All were drawing on, to some extent, the way in which Picasso and Braque had used *papiers collés* (pasted papers) in prewar pictures. But where the cubists had been striving for a logical, visually harmonious whole, Ernst and his fellows reveled in the combinations of totally unrelated images and the resulting social, political and erotic implications.

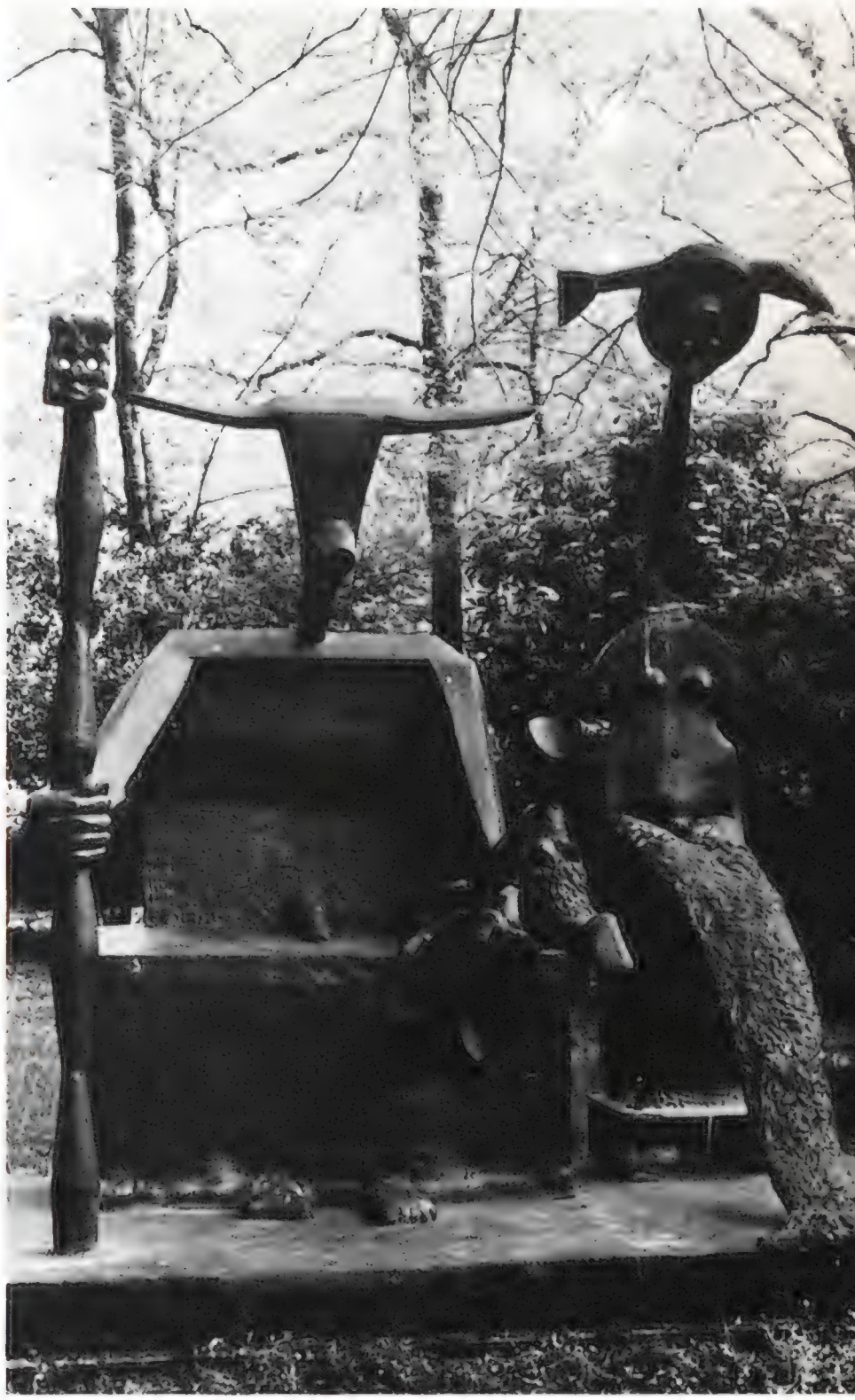
In 1922 Ernst left his wife, his infant son Jimmy, and a job at his father-in-law's hat-machinery factory, to go to Paris.

He was tiring of collage and moving on to a new kind of picture: calm, poised paintings of peculiar, hybrid creatures and solemn men and women, set in landscapes that stretched far back into space. These

Private Collection, Paris



Menil Family Collection, Houston



Whether in three dimensions, as here in *Capricorn* (1948), or in two, Ernst's singular vision stays constant, a unifying force embodying private worlds.

paintings relied on the rules of perspective discovered in the Renaissance and used for centuries, but discarded by the cubists. Partly because he'd studied the haunted cityscapes of the Italian painter Giorgio de Chirico, Ernst was reviving this style of painting and placing it in a new context.

In 1924 the surrealist movement was formally launched by André Breton, with the *First Surrealist Manifesto*. The surrealists had high hopes: They believed they could structure not only a new art but a new society on a utilization of the unconscious mind, as outlined by Freud. Breton defined surrealism as "pure psychic automatism by which one intends to express verbally, in writing or by some other method, the real functioning of the mind."

Many surrealist painters, such as Dali, René Magritte and Yves Tanguy, would be content to follow the path Ernst had already blazed, expressing the mind's dream imagery in canvases with traditional Renaissance perspective. Ernst was still in search of something closer to "pure psychic automatism."

In August 1925, Ernst found himself staring at the wooden floor of a seaside hotel. Suddenly, he had another of his "insupportable visual obsessions." He laid

a piece of paper on the floor, rubbing a pencil over it until the grain of the wood was reproduced, then added legs, eyes and other elements to complete the creatures brought into being.

This technique he christened *frottage*, which he varied by making rubbings of other objects, such as leaves and thread. He adapted the process to oil and canvas by applying paint, then scraping or troweling it off. This he called *grattage*.

Birds, especially, surfaced in his *grattages* and *frottages*, but also rampant stallions and dark, steeply ridged forests which echoed the dark pine trees of his childhood in Brühl. It was a time of remarkable creative fecundity, complemented by his courtship of and marriage to Marie-Berthe Aurenche, a young, convent-educated French girl. Ernst collaborated with Miró in designing sets for a ballet staged by Serge Diaghilev, and played the role of a highwayman in Luis Buñuel's classic surrealist movie, *L'Age d'or*.

When France was invaded, Ernst was sent to a prison camp as an enemy alien. Even there, he kept on painting—this time exploring yet another technique, called "decalcomania." He would pour paint on a piece of paper or a sheet of glass, then press a canvas against it and take it away. On the canvas were left spongy, fungoid forms which could be worked up into landscapes reminiscent of prehistory.

When friends won a parole for him, he fled to Marseilles, where thousands were seeking permits to emigrate. Fortunately, he met Peggy Guggenheim, the American copper heiress who, before the war, had already started amassing a sparkling and significant collection of 20th-century art in London and Paris. With Peggy's assistance, Ernst traveled through Spain to Portugal. In July 1941, he, Peggy and her two children flew to America, Ernst having mailed his unfinished canvases on in advance.

Max married Peggy in 1942. They set up house in a brownstone on Manhattan's Beekman Place. Other artists and surrealists had also fled to New York, including Breton, Masson, Tanguy, Fernand Léger, Marc Chagall and Piet Mondrian. Younger American artists avidly studied the exhibitions of the exiles' work staged by Manhattan galleries, including the gallery Peggy Guggenheim set up.

Beekman Place was a hive of parties, with a guest list ranging from Clifford Odets to Gypsy Rose Lee. Max, however, was as usual caught up in experiment: this time, with something called "oscillation." It involved punching a hole in the bottom of a tin can, filling the can with paint, and then swinging it by a string over a canvas. The result was thin, ropy, criss-crossed lines which looked surprisingly like the drip paintings which a young American named Jackson Pollock would make famous a few years later.

In 1943 Ernst met a pretty young American surrealist painter, Dorothea Tanning. They discovered they liked playing chess together, and went out to Sedona, Arizona, to spend the summer.

Max, by then divorced from Peggy Guggenheim, married Dorothea in 1946. For a while they continued to live in Arizona, but in 1953 they returned to France, where Ernst was becoming something of a national celebrity. After he won the Grand Prize for painting at the Venice Biennale in 1954, he found himself, for the first time in his life, able to sell his work in quantity. (His paintings bring pretty prices at auction markets today.) In 1963 the couple established themselves where they live today, on a hilltop in Seillans in a modern villa designed by Dorothea and decorated with Max's art, along with that of many of his old friends. They share the premises with a Pekingese named Groucho.

Ernst found time, in 1964, to develop a new etching technique. He has also discovered a painter's vocabulary to express a new tranquility in canvases that employ larger, freer forms and a fresh clarity and radiance of color. Still, he has never been content with any of his many innovations. "A painter is lost if he 'finds' himself," Ernst once observed. For him, the search goes on—to discover new icons and means of rendering them which will enable others to share his own ever-widening horizons. A bird to Max Ernst is not merely a pet cockatoo, not merely a denizen of the animal kingdom. It is a symbol of all in himself and in mankind that flutters upward, seeking a different vision.

Euclid (1945), in the geometry series, is a play on planes. The Greek mathematician's head is portrayed as a reversed pyramid.

Menil Family Collection, Houston

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Large Bouquet of Roses

Renoir loved to do flowers and he used them often. He spotted them about in larger compositions, and as you'll see in this painting, used them as subjects in their own right.

He painted them as "experiments in flesh tones" for the nude. He was especially sensitive to their natural beauty, color and irregularity. Most important of all he somehow penetrated and succeeded in expressing their very "naturalness".

Woman in Blue Hat

Who else but Renoir could have given us a vision so rare and utterly charming? Who else could capture in one subject the ineffable beauty, delicacy and essence of femininity?

Other painters—Renoir's idols, Watteau, Boucher and Fragonard—for instance, have given us charm and delicacy; but only Renoir has succeeded in so completely etherealizing a personality, while keeping it warm and human.

In the last decade of his life, Renoir was devoted to one theme—the beauty of woman. It helped restore warmth and youth to his painfully arthritic hands. So joyous, free and spontaneous is "Gabrielle In A Hat", it may well have been the work of a single sitting. You can almost visualize this masterpiece taking shape through quick, effortless brush strokes.

"I am like a cork thrown into a stream and carried along by the current," Renoir said, "When I paint I just let myself go."

Gabrielle in a Hat

Renoir.

Renoir.

Coco

It seems that the world's greatest painters of nudes (Titian, Rubens, Goya and Renoir), were also among the world's greatest painters of children. Perhaps it is because young children reflect the love and tenderness of the women who guide and protect them.

In this delightful study of his son Claude, Renoir captured for all time the sweetness and flower freshness all parents see in their children.

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Here is the amazing history of this totally unique, truly magnificent Collection. The idea belonged to Pierre-Auguste Renoir, himself. And he had completed several lithograph stones and begun several others before death claimed him.

For some reason the Lithograph Collection was all but forgotten. Perhaps because no one else but Pierre-Auguste Renoir saw the potential beauty it held. Then Paul Renoir, grandson of the impressionist master and present head of the Renoir estate, re-discovered his grandfather's work and determined to complete THIS OFFICIAL RENOIR LITHOGRAPH COLLECTION.

Paul Renoir spared no effort or expense—he secured the services of the world's finest lithographers—he purchased costly Velin d'Arches (a 100% rag paper, one of the finest available)—he personally supervised every step in the creation of each lithograph (from mixing of the colors, to finally embossing the only official Renoir signature and Atelier Renoir Seal).

The six lithographic stones used for the Renoir Collection were destroyed on May 13, 1974. Each one of these six Renoir lithographs has been made in a limited and numbered edition of 250 **with no artist's proofs.** These six authentic Renoir lithographs are not re-strikes, and will never again be made in the future.

Paul Renoir was so proud of the results that he decided to issue a "Certificate of Authenticity" which accompanies each lithograph and **is individually signed by Paul Renoir himself.**

Woman with a Rose

Let the words of the impressionist master himself express the special magic in this unequalled study of femininity in warm red.

"I want a red to be sonorous, to sound like a bell, if it doesn't turn out that way, I add more reds and other colors til I get it." Renoir accomplished this goal in this canvas. And this one too—"Fine art must be indescribable and inimitable." This masterpiece is indeed that.

Only after three years was Paul Renoir satisfied the Collection was as his grandfather would have wanted it to be . . . unquestionably these lithographs are a tribute worthy of Pierre-Auguste Renoir . . . never before have Renoir's works been captured with such fidelity . . . they vibrate with rich color . . . they glow with lustrous light . . . touch them and you're amazed you can't feel the brush strokes!

Just imagine the thrill of owning AUTHENTIC RENOIR LITHOGRAPHS. Imagine the beauty and prestige you'll add to your home or office. Imagine their tremendous **investment** potential.

Splendid investment potential! Consider these facts and you'll begin to see why.

- BARRON'S, this country's leading weekly financial magazine, in their December 31, 1973 issue carried a feature article that reads as follows:

Care to See My Etchings? (Lithographs)
They Proved the Best Investment of 1973

. . . The debacles in stock markets, and the tragedies of bond holders and of owners of savings bank accounts, along with the unstable political conditions which prevailed throughout the year underscored once more the merits of objects of art and culture as vehicles for the protection of capital . . .

. . . and it was amazing to see that in terms of price appreciation, etchings (lithographs) led the way followed by the so-called "Surrealist of Mystic" painters . . .

. . . etchings (lithographs) to the top of the list, with an unexpected advance of at least 400% above 1972 prices . . .

- This is the first and **only** OFFICIAL RENOIR LITHOGRAPH COLLECTION authorized by Paul Renoir.
- These authentic lithographs bear the only Renoir signature stamp and are embossed with the official Atelier Renoir Seal. This signature stamp rests in a vault in a large European bank.

But, most important of all, this investment potential is a proven fact! Although the present asking price for each of these lithographs (18¾" x 25½") is $450.00, two have already brought much higher prices . . .

. . . Before committing the tremendous sums of money necessary to produce the Collection, Paul Renoir decided to determine whether or not the Art World would appreciate their special value. To do this he had auctioned 2 single lithographs in October of 1972, at two separate government controlled auctions (the French Government supervises art auctions to insure their honesty) held at the prestigious Hotel Rameau in Versailles: "Gabrielle In A Hat" brought $567.00—one week later "Woman With A Rose" brought $745.00! (These auction prices are published in the 1973 edition of ANNUAIRE INTERNATIONAL DES VENTES—1973—by E. Mayer. This annual publication carries the official results of the most important auctions held throughout the world and lists ONLY the actual sales.)

No wonder, this CAN BE the art opportunity of a lifetime! If you would like to own these AUTHENTIC RENOIR LITHOGRAPHS, please complete this reservation form at once!

The price of each RENOIR lithograph is $450.00. You may purchase the complete collection of the six lithographs for the price of five or $2,250.00.

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Simply fill out and mail the Reservation Coupon in this ad. We will rush you an order form (naturally, the order form will include space for credit card holders), a magnificent color booklet of the Renoir Collection and full particulars about this "opportunity of a lifetime."

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Everyone has experienced that one, perfect summer day when all is right with the world. In "The Swing" Renoir succeeded in putting such a day on canvas. His brush conveys the laughter, cool breezes, leafy freshness and muted, ever-changing colors of a summer afternoon in the park. Renoir often said he took special pleasure in painting "The Swing" —it shows!

"The Swing" was painted in the garden at Renoir's Rue Cortot house . . . the place where so many of his masterpieces were born.

the Swing

ATELIER CAGNES S/M RENOIR

SIX WORLD FAMOUS RENOIRS SELECTED FROM THE MASTER'S WORKS AUTHORIZED BY PAUL RENOIR

(Grandson of the artist and head of the Renoir Estate)

Two small sisters in Quiché regional costume
choose a backdrop far removed from home area.

Text by Avon Neal
Photographs by Ann Parker

It's a big deal posing for camera in Guatemala

Ancient equipment and wondrously unreal backdrops make magic as itinerant portraitists get shy country Indians in front of the lens

Youthful *fotógrafo ambulante* in Huehuetenango gets to work with a bashful Indian from the hills.

Two small Guatemalan Indian girls who have never traveled far from their highland village stand patiently and with some foreboding before an urban scene of office buildings, bustling streets and rushing traffic. They are getting their picture taken, and, as is customary in this mountainous Central American country, they have chosen a painted backdrop which places them about as far away as they can get from their normal environment—probably a tiny village compound set within a barely accessible mountain valley, a day's bus ride away.

Having your picture taken is very serious business if you are a highland Indian. You have a deep-seated feeling that the black box with the glass eye captures some portion of your soul and that whoever ends up possessing your picture can use it to work black magic. So, as the photographer focuses, the subject inevitably becomes rigid and the face turns sober, he retreats into himself, achieving a sort of trancelike state, stiff of joint and glazed of eye.

The perpetrator of all this discomfort is the itinerant photographer with his old box camera and his brightly painted backdrop with its unlikely scenes of citified dissipation. No market day is complete without one photographer, and some festivals draw a dozen of them, all lined up along the main thoroughfare, or down a major side street, waiting to lure a few takers from the crowds of visitors that throng the sidewalks. Some of the *fotógrafos ambulantes* travel great distances to accommodate the demand. Their portraits, of course, are black-and-white and do not approach the same quality as the color photographs shown on these pages.

On special market days, people flock to trading centers like Chichicastenango, Sololá, Totonicapán, Momostenango, San Francisco el Alto and Huehuetenango, the women in beautifully woven costumes, the men, often in dark suits, all burdened with great loads of farm produce. After buying their few necessities and leaving their small donations at the church, they sometimes have enough left over for the luxury of having a photograph taken.

The prospective clients may spend hours walking back and forth, inspecting each photographer's backdrop and his simple board display. Knowing the game, the itinerant photographers use a very soft sell. If one detects more than casual interest in a possible client, he will sidle over unobtrusively and discuss the possible transaction quietly—usually in the customer's dialect, either Quiché or Mam. Some Indians are so shy about facing the ordeal of the camera that they would

Woman celebrating her 84th birthday
poses proudly under angel at Chimaltenango.

Brothers from Nahualá select a busy urban backdrop,
perhaps to make friends think they were there.

never be photographed were it not for a government edict requiring adults to carry identification cards that include pictures on them.

In remote areas, people will often flee if a tourist camera is aimed at them. Mothers will hide their children behind billowing skirts or cover their heads with shawls and chivy them out of sight like hens herding chickens from a hawk. Often men will make the sign of the cross and shout imprecations as they scurry out of sight.

One country family, posing for a group portrait before an itinerant photographer, noticed an outsider also aiming his camera at them. The father stepped forward and asked, politely, that only one camera be allowed to do its work for his baby was ill and might not be able to resist two.

So it takes a while for a country Indian to work up the courage for a session before the backdrop of his choice. One, at the Huehuetenango fair, struggled with himself for more than an hour before taking the step, then afterwards went straight off to talk things over with a fortune-teller.

Newly-elected village officials take time out
from celebrating their victory to pose sternly.

Sisters in their village dress face the camera under a legend that proclaims "A Remembrance."

"I will never forget you" protests painted sentiment above sprightly lady and reluctant husband.

At Chimaltenango, a woman celebrating her 84th birthday was obviously less concerned with the danger of posing. She had already braved a lonely ride in a bus to reach the fair. And two newly elected village dignitaries visiting Sololá's religious fair had been celebrating their new office by drinking cans of a cheap liquor called *aguardiente* and dancing together to marimba music outside the bar. Blissfully lubricated, they reeled off to a photographer's booth, posed solemnly in their ceremonial hats and then—their dignity dissolving—staggered back to the bar for a last one before returning to their mountain village.

Fotógrafos ambulantes have been roaming the back roads of Latin America since well before the turn of the century, but in most places they are now simply street and park photographers plying their trade on Sundays and holidays. But in Guatemala the profession still thrives, luring entire families onto the itinerants' trail. During the festive season these families set up shop in assigned locations at every important fair and marketplace, gently coaxing celebrants to take home photographic souvenirs.

Prices are modest, uniform and also adjustable. If a photographer is working in an area recently blighted by drought, he concentrates on selling his cheaper product. Earnings vary depending on unpredictables like luck and weather.

Life on the road is a marathon of third-class bus travel, wretched nights in cheap lodgings and marketplace food washed down with weak coffee and soft drinks. The photographer works rain or shine, loading his bulky equipment aboard a bus in the wee hours, jolting endlessly over mountain roads, doing his job despite treacherous weather, milling crowds and the ubiquitous drunks.

The equipment is a step back to the beginnings of photography—old homemade box view cameras put together from ancient parts. The optical quality is generally miserable. The cameras are often affectionately called "mini *laboratorios*" because they contain within their compartments trays of chemicals where all the developing is done. On an average, 15 to 20 minutes are required to produce a final print for the customer.

Meanwhile, the customers stand around the tripod, marveling at the mysterious process. Paper negatives and prints are washed in a bucket of tap water where dogs and chickens drink and people wash their hands. Casual is the word for it.

Studio props have become fairly standardized over

The husband-and-wife team of Avon Neal and Ann Parker will have their book, Los Ambulantes, *published by Amon Carter Museum later this year.*

the years—a folding chair, a flimsy stand for the inevitable vase of travel-weary plastic flowers, a *caballito* or tiny wooden horse, used to entice children. Sometimes there's a sombrero and a brace of wooden pistols. For a formal portrait, the photographer supplies a clip-on tie. He'll also lend his own coat to enhance the dignity of the occasion.

The backdrops are usually brightly colored landscapes or *paisajes,* painted on broad strips of canvas stitched together and hung from horizontal poles. These are fronted by awnings to guard them against direct sun and shield them from drizzling rain. Lengths of cotton cloth hang down on either side to complete the illusion of being inside an enclosure. This is an important nicety for Indians, who mostly prefer being photographed in surroundings which at least give them the feeling of some privacy.

The backdrop measures about six or eight feet on a side and carries a variety of themes. It may have a romantic message lettered on flying ribbons—*"No Me Olvides"* ("Don't forget me"), *"Un Recuerdo De Hoy Y Siempre"* ("A souvenir of today and always"), *"Jamás Te Olvidaré"* ("I'll never forget you")—or elaborate cityscapes complete with people in supposedly the latest North American urban dress, "ultra-modern" vehicles and skyscrapers with airplanes zooming around overhead.

Views of historic cathedrals are highly popular, also scenes with quaint bridges and storybook castles. Guardian angels draw many patrons, and so does the exotic quetzal bird which adorns Guatemala's national emblem. Many scenes are copied directly from picture postcards and prominently display place-names like Rio de Janeiro, Lima and Ciudad Juárez, Mexico. Country Indians who have never even thought about a large city, much less visited one, are especially intrigued with these.

Itinerants often paint their own backdrops. For more complicated ones, they get sign painters to do it. The cloths usually last a dozen years or so and are often passed back and forth among members of the same family. As a folk art, these elegantly designed scenes with their bright colors, crude perspectives and careful attention to detail stand alone as a sort of genre style.

The photographers themselves estimate that there may be as many as 300 of them left in all of Guatemala. About one-third of these travel with their old-fashioned cameras and hand-painted backdrops, moving from one highland market place to another, from one fair to the next.

How long the tradition can last is a matter of some speculation—and, more precisely, also a matter of economics. Already a few older photographers are worried about the difficulties of making a living at the old stand. With so many photographers bringing their sons into the business, the numbers of itinerants rise and the meager profits are spread thin. It is becoming increasingly hard for everybody to earn a decent living at the game.

There is also the constant worry about changing times. There are new, progressive demands all through Latin America, and the old cult of wandering cameramen may have to conform, changing their techniques, their working habits. They may be forced off the road and into the studio.

Even more disastrous to the old craft is the possibility that with an improved economy in Guatemala, ordinary citizens, perhaps even back-country Indians, will be able to buy their own cameras and take their own pictures. The thought of Polaroids replacing the battered old boxes on their trembling tripods is enough to destroy the equanimity of all the *fotógrafos ambulantes* in the world.

But it hasn't happened yet. And in the meantime, the old tradition lingers in Guatemala. A woman, resplendent in her village costume, drags her dark-suited husband in front of a backdrop bearing a pair of turtle doves and a suitably inscribed ribbon. Young Indians, carefully dressed for the local fair, stand stonily before urban scenes that look for all the world like New York City in 1927. Hovering angels appear to place their blessing upon the heads of other customers.

The passing of this tradition—if it does eventually go the way of all old-fashioned niceties—will lend a new drabness to the towns of Guatemala.

Country woman visiting Momostenango insisted that her bundle of live chickens share the experience of being photographed.

Recuerdo.

PARA

PRODUCTION - 1913
LEWIS & CLARK REACH PACIFIC - 1804
LINCOLN'S GETTYSBURG ADDRESS
JOHNSON SIGNS CIVIL RIGHTS BILL
FIRST MAN LANDS ON MOON - 1969
GAIN RIGHT TO VOTE - 19
LINDBERGH LANDS IN PARIS - 1927
LARATION OF INDEPENDENCE - 1776
ALLIES LAND AT NORMANDY - 1944
WESTWARD MOVEMENT BEGINS - 1843
AIL LINK EAST AND WEST - 1869

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

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OF THE UNITED STATES OF AMERICA'S
200TH ANNIVERSARY

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A Single Limited Minting
Available by Advance Subscription Only
Subscription Rolls Close on March 31, 1975

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In furtherance of its objectives, The American Revolution Bicentennial Administration announces the minting of *The Bicentennial History of the United States* in enduring metal.

This permanent Bicentennial history of our nation will be recorded in a series of commemorative ingots, to be minted in the two metals closely identified with the early years of our history—sterling silver and fine American pewter.

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The Bicentennial History of the United States will portray 100 of the most significant events of our nation's past—beginning with the Declaration of Independence on July 4, 1776, and ending with the celebration of our country's Bicentennial throughout all the States of the Union in 1976.

To select the 100 events that will be portrayed on the ingots, a special board of distinguished historians was assembled. And The Franklin Mint, the world's largest private mint, will strike the ingots for this important series.

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Subscriptions will be strictly limited to one per person. The ingots will be struck for each subscriber in his choice of sterling silver or fine pewter. The series will be issued at the rate of one commemorative ingot per month for 100 months, beginning in May 1975. Thus, each subscriber will be able to build his collection of these historic ingots on a convenient monthly basis.

The issue price for each ingot will be $10 in pewter and $30 in sterling silver. These prices will be *guaranteed throughout the entire subscription period* regardless of any increases in the price of fine metals or the cost of minting during that time.

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Subscription rolls close on March 31, 1975

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The Franklin Mint
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All orders are subject to acceptance

63

THE FRANKLIN MINT IS THE WORLD'S LARGEST PRIVATE MINT. IT IS NOT AFFILIATED WITH THE U.S. MINT OR ANY OTHER GOVERNMENT AGENCY

By Laurence Pringle

Each antagonist in coyote debate is partly correct

Coyotes make the news while game biologists try to pin down a few facts in argument between sheep ranchers and environmentalists

A coyote seeking a meal prowls along a corral fence in the National Elk Refuge near Jackson Hole.

In November 1974, more than a hundred biologists met in Denver. For an intensive four days they talked, in meeting rooms, hallways, restaurants and bars, over late-night liquor and morning coffee, of such esoteric matters as toxic collars and M-44s. Two words were spoken again and again, thousands of times each: "sheep" and "coyotes."

This may be the year of the coyote, the main predator of sheep in North America. It has been the topic of national magazine articles and the focus of an escalating controversy over predator management. Just a few decades ago there was no controversy: Predators were "bad." They killed livestock and game; therefore they were shot, trapped and poisoned, a bounty was paid, with complete extermination a hoped-for goal.

Then we grew up a little, and began to view nature —and predators—in a different light. Predators were "good," just as everything in nature is good. Some of this new respect for predators was based on solid evidence from field studies; some emanated from a rising romanticism about nature.

While ecological consciousness had been raised by the early 1960s, it was still business as usual for government trappers. Many questions—ecological, economic and ethical—were raised about the program conducted by the Division of Predator and Rodent Control (later called the Division of Wildlife Services). Secretary of the Interior Stewart Udall appointed a committee to study the matter, and its 1964 report led to some changes in federal predator-control practices. But not enough. Protests increased, especially about the extensive use of poisons in the West. In 1971 another committee examined predator management. The Cain Committee concluded that "today's society places as high a value on prairie dogs, eagles and coyotes as does the grazing lessee on public lands or the owner of a ranch on his flocks of sheep."

The committee's recommendations contributed to a 1972 ban on the use of poisons on federal lands. Soon the Environmental Protection Agency barred interstate shipment of these chemical toxicants.

A great howl has since come from sheep ranchers, who claim increased losses to predators. Pressure has mounted on legislators and other politicians. Twenty-one Senators from Western states signed a letter which accused the Department of the Interior of failing to protect livestock from predators. A resolution passed at the 1974 Western Governor's Conference urged the reinstatement of predator poisons and the transfer of responsibility for predator control from Interior to the Department of Agriculture.

Emotions rose on both sides of the issue. The extremes go something like this, with some sheepmen saying, "The only good coyote is a dead one; unless we get a sound predator-control program, the sheep industry will die."

The name is pronounced kī′-ōt in the North Central and Northwestern states, kī′ō′ti in Southwest.

Some environmentalists say, "Let the sheep industry die, if it can't survive despite cheap public grazing lands and price supports. The ecological health of the land is at stake. Coyotes keep populations of rodents and rabbits in check, and we must save them from extinction."

Total nonsense from both sides.

Within this emotional climate lies the danger that political decisions about predator management will be made without a long, cool look at the situation. Quietly, in the background, there is a great deal of research going on. According to the "Coyote Research Newsletter," there are now under way about 120 studies of coyotes, coyote-sheep relations and coyote-control methods. Reading descriptions of these projects, one doesn't have to be a wildlife biologist to note wasteful duplication of effort, but some biologists are asking the right questions. The answers, however, may not be available for several years. Meanwhile, there are facts already known about coyotes and sheep which should be faced by ranchers and environmentalists alike.

Former magazine editor Laurence Pringle wrote and photographed the article on wild rivers in the September 1972 SMITHSONIAN.

In North America, the sheep industry has declined from a peak of 55 million head in 1942 to about 18 million head in 1974. Nearly 80 percent of these sheep are raised in the 17 Western states. The decline has several causes, including a growing American taste for beef, reductions in grazing allotments on public lands, rising costs of land and labor making foreign wool cheaper, and difficulty in hiring qualified, dependable workers. Basque shepherds are brought in with work visas to fill part of the labor gap. The industry has been slow to try new methods and more productive breeds, and has a narrow margin of profit.

A troubled, declining sheep industry should be no source of joy for environmentalists. Quite the opposite. Unlike cattle, sheep produce two crops. Their wool is not made from petrochemicals, as synthetic fibers are. They convert plant food to protein more efficiently than cattle, and thrive in sagebrush, on rugged mountain slopes, and in other habitats that won't support cattle. In a world running short of food and fossil fuels, it seems reasonable to encourage growth in the sheep industry—though not at the cost of an overgrazed landscape devoid of predators.

Sheepmen feel powerless to do much about distant marketing problems or a lack of reliable help. But coyotes—now *there's* a nearby problem about which

This lamb was killed by coyotes, which strike at the throat nine tenths of the time.

something can be done. Some ex-sheepmen claim coyotes as the main reason they left the business. Perhaps so. In sheep ranching, as in any other endeavor, there are efficient operations and sloppy ones.

Over the last 50 years, various state and federal agencies have sought to record actual sheep losses, mostly through questionnaires sent to ranchers. The accuracy of these surveys is questionable. Herders and ranchers have some obvious reasons for exaggerating predator kills.

On the open range, sheep die or disappear for many reasons. Among sheepmen there is a tendency to blame predators in general and coyotes in particular for any missing sheep or dead sheep that shows signs of violent death. Obviously, here is a question at the heart of the predator-management controversy. What are the actual losses to predators?

In 1969, a survey of some Utah sheep ranchers revealed a loss of about three percent to predators. That seems rather insignificant until one considers that the profit margin in the sheep industry is only about two to four percent. Theoretically, an end to predator losses would increase profits, and make the business much less risky.

More precise information on predator losses is needed—data based on actual, unbiased observations. Four such studies conducted by the U.S. Fish and Wildlife Service are under way, involving 16 flocks of sheep. In New Mexico, use of radio transmitters on harnesses has enabled biologists to find dead sheep that otherwise couldn't be located, or which would have been found too late to identify the cause of death. Radio telemetry equipment for hundreds of sheep is expensive, though. Intensive ground searches for dead sheep are used in Idaho and Wyoming.

Near Rawlins, Wyoming, five flocks of sheep have been watched for a period of nearly two years. The field workers who accompany the flocks are trained by

veterinarians to perform necropsies. They skin each dead sheep. Subcutaneous hemorrhage around the wounds is evidence that the animal's heart was pumping when it died—a predator kill. The location and type of wounds indicate whether a sheep was killed by a coyote, bobcat, eagle, dog or some other predator.

The Wyoming study is directed by Dr. James R. Tigner of the U.S. Fish and Wildlife Service. He says that at least two more years of data are needed before an accurate assessment of predator losses can be made. He also points out some of the complexities of that assessment. "Suppose a ewe has twin lambs. A coyote attack on its flock, or just the approach of a coyote, may cause the ewe to abandon one lamb. Later the lamb is found dead with no milk in its stomach. The official cause of death, based on what we can observe, is starvation. The real cause is coyote. On the other hand, coyotes undoubtedly kill some sheep that are sick or injured—deaths that would occur anyway."

They may cull the fittest

Some people claim that coyotes have an important culling effect on sheep, taking only the sick, weak or injured. Dr. Tigner doubts it: "This may be true in relationships which have evolved over millions of years—between coyotes and jackrabbits, for instance. But it doesn't apply with domesticated animals. A coyote doesn't need one-tenth of its predatory ability to kill a sheep. Sheepmen claim that coyotes often take the biggest and best lamb. They're probably right. Sick and weak lambs may stay in the center of the flock, with healthier animals on the fringe. By virtue of their vigor they become targets for predators."

This is just one aspect of coyote-sheep relations that will be studied in large open pens recently built near Logan, Utah. One hundred and twenty acres have been set aside for studies of coyotes and sheep. Some sample questions: How and why do individual sheep "select" themselves to be prey? Is there an ideal flock size which enables sheep to resist predation? (Flocks of sheep have been observed attacking and driving off coyotes.) The large pens will also enable biologists to test, under seminatural conditions, an arsenal of coyote repellents and control devices.

Near the turn of the century, the Sears, Roebuck catalog offered a sheep collar, studded with sharp points, that was meant to prevent coyote predation. Today, scientists in a half-dozen states are still seeking effective ways to turn coyotes away from sheep. Awful tastes and smells, ringing bells, ultrasonic tones, electric shock—all have been tested to some degree in laboratories and small pens and with varying success.

In 1974 there was a brief flurry of excitement over the use of a chemical (lithium chloride) which, mixed with minced lamb, caused coyotes to vomit when they ate the meat. After this experience, one coyote cowered in a corner when a live lamb was put in its cage. This dramatic "evidence" of aversive conditioning received wide press coverage, as writers imagined a countrywide bait-scattering program that would make coyotes sick at the sight of sheep. Alas, the original research was flawed; lithium chloride seems a poor choice as an aversive conditioner for coyotes. The ideal chemical for this purpose would be fast-acting in small doses, yet not fatal in large amounts. It hasn't been found yet.

If such a chemical is found, it might be delivered to a coyote from an "aversive" collar around a lamb's neck. Coyotes usually strike at the neck when they attack a sheep. Consider this scenario: When coyotes begin killing sheep in an area, the main flock would be moved and a few remaining lambs would be fitted with collars containing the chemical. An attacking

A long lens captures a group of coyotes howling at the National Elk Refuge in Wyoming.

Coyotes feed on the carcass of an elk that died of natural causes. Body was moved for the picture.

coyote would then give itself a dose of the chemical and dash away, never to touch a sheep again.

Those who know coyotes well are skeptical about this and other methods aimed at repelling coyotes. The coyote is a remarkably adaptable creature, and has already demonstrated an ability to overcome an initial fear of bells and other repellent devices and chemicals. For this reason, some biologists are most hopeful about poisonous sheep collars which would kill an attacking coyote outright. The predator would have no chance to learn from its experience.

This method would affect only those coyotes which kill sheep. Any coyote can become a sheep killer, but evidence suggests that only a fraction—perhaps a small one—regularly preys on sheep. The most intensive predation frequently occurs during the lambing season. A pair of coyotes, raising their young near a lambing ground, may turn to the easiest prey around. At other times, some coyotes kill sheep for the hell of it, for practice or, more likely, because something in the sheep's behavior triggers their drive to attack and kill.

Casualties in a long war, coyote carcasses were strung along range fence by a Texas rancher.

Toxic collars on some fraction of a flock would also stop predation by those crafty coyotes that have learned to avoid traps, poison baits and other control methods. According to Dr. Frederick F. Knowlton, leader of the Predator Ecology and Behavior Project at Utah State University, toxic collars have been tried in 14 instances in Texas, where the book had been thrown at coyotes and killing still went on. In 13 cases, once toxic collars were used, only one more sheep was killed. In the other case, only two more sheep were killed.

The poison used in these collars can be either cyanide or 1080 (sodium monofluoroacetate). The latter was the favorite weapon of ranchers and predator-control agents. (Though now illegal, it is still in use, even on federal lands.) Carcasses injected with a 1080 solution were placed, one per township, to attract coyotes in winter, the season when carrion interests them most. The method was not selective; it could kill any coyote that fed on it. It also killed other animals—bobcats, badgers, foxes, raccoons, vultures, hawks and eagles. These nontarget mortalities alarmed many environmentalists.

Biologists who are close to the coyote-sheep battle-

Frederick Knowlton, a predator ecologist, plays with coyote used in studies at Utah State University.

ground defend the use of poisons. Dr. Knowlton says, "The choice of a chemical is not as important as the manner in which it is used. 1080 can be used with great effectiveness, efficiency and safety. It is more toxic for canines than for other animals; a dose of 2.5 milligrams will kill a coyote. That amount won't harm most species, though it would be borderline on bobcats. The main problem with 1080-injected carcasses was that the dose could not be regulated."

In Denver, the careful use of poison was also defended by Donald S. Balser, chief of predator-damage research for the Bureau of Sport Fisheries and Wildlife. He described the M-44, a spring-powered, cyanide-loaded tube that is imbedded in the ground and topped with a bait of scented wool. When a coyote tugs at the bait, a puff of cyanide enters the animal's mouth, and it dies almost instantly.

"Properly used," says Balser, "the M-44 can be quite selective for coyotes. It is definitely more selective and humane than steel traps—the major weapon still legal for predator control."

The Environmental Protection Agency, armed with a permit for experiments, is conducting a one-year test of M-44s on private lands in Texas. Current federal regulations allow government trappers to use M-44s in an emergency, when they can prove significant losses to predators. Given the ranchers' labor problems and the difficulty of finding all predator kills, such losses are hard to prove even though they may be real.

Although Donald Balser defends the careful use of M-44s, he has no illusions about these devices being a cure-all. Evidence from other studies shows that many coyotes do not find baits, or avoid them. In the mid-1960s, for example, biologists discovered that an anti-fertility chemical, concealed in beef-tallow baits that coyotes readily eat, reached only about a third of a coyote population. Poisons have been most effective in northern states, where cold weather and food scarcity in winter make coyotes dependent on carrion, and thus vulnerable to poison baits. The effectiveness of nearly all coyote control methods has declined over the years, probably because coyotes learn to avoid them, and teach their young to do the same.

People usually oppose control measures against coyotes because of the death of nontarget animals and because they fear coyotes will be wiped out. And that, they claim, will lead to population explosions of rabbits and rodents. From the evidence available, however, none of these fears is justified.

"People fail to recognize the ecological dynamics involved," says Dr. Knowlton. "They got upset when they saw *individual* badgers, foxes, and other nontarget species killed by 1080, without considering the effects on whole *populations*. Apparently, the reduction of coyotes caused an increase in most other species of predators."

Red foxes became more abundant when the coyote population was reduced in the western Dakotas. In Utah, Wyoming, Arizona and Texas, the numbers of

badgers, bobcats, and foxes increased after 1080-bait stations were introduced. From a population perspective, the coyote-poisoning effort had good effects on other predatory species.

The reasons for these population shifts are not fully understood. There is competition for food, of course, but interspecific aggression may also be involved. This is demonstrated almost daily within the city limits of Los Angeles, where coyotes kill hundreds of dogs and cats each year. Among canines, the larger, more aggressive forms seem to be "top dog." Wolves are known to kill coyotes. In the past, coyotes were probably much less abundant because wolves were dominant.

"Some people urge that we should 'let nature take its course,'" says Balser, "without considering how humans have already altered the environment to the advantage of coyotes—by eliminating the wolf, and by grazing and farming practices which produce plenty of rabbits and rodents for coyotes to eat. We have unwittingly created a kind of 'predator monotype' in much of the West. For me, there is a special benefit when coyotes are reduced somewhat; I like to see a greater variety of predators on the land."

The coyote is far too smart and adaptable to be in any danger of extinction. It has increased its range three- or fourfold since North America was colonized. An estimated million coyotes live in the West. They are found in a variety of habitats, from mountaintops to deserts, and within the borders of Denver, Portland, Los Angeles, and many other cities. Coyotes have regular population cycles that have continued despite control efforts. The changes are usually related to highs and lows in populations of rabbits and rodents. There is no evidence that coyotes control populations of these animals. The reverse seems to be true: The availability of rabbits and rodents affects the abundance of coyotes.

Over the entire West, predator-control agents have a rather small effect on coyote numbers. The 420 government agents are concentrated where the sheep are, on 25 percent of the land. They may kill 80,000 coyotes a year. Throughout the West several times that number are killed by hunters, few of whom deliberately seek coyotes but most of whom will shoot when they see one.

A government predator survey, begun in 1972, suggests that coyote populations rose in most states east of the continental divide during 1973; coyote populations increased in nine Western states and dropped in eight. Sheep ranchers were quick to blame rising coyote numbers on the federal poison ban. In some areas coyotes were already increasing before the ban took effect, but there is no doubt that their numbers rose sharply in regions where poisons had previously suppressed them.

So the coyotes are doing fine, which inevitably means some sheepmen are unhappy. Increasing numbers of cattle ranchers also complain of coyote predation on calves. Coyotes even "prey" on watermelons, taking a bite from ripe fruit, and are an economic threat to Western melon farmers. The calls for help grow louder; the question is, what form should the help take?

It has been suggested that ranchers and farmers be paid for their losses by insurance programs or government subsidies. Training ranchers to trap coyotes has been proposed, but reliance on trapping, as practiced by thousands of people of varying skills and dedication, seems particularly futile. The Department of the Interior has proposed that responsibility for predator control be given to the individual states, an idea which a leading environmentalist calls "a desperate buck-passing move which would end all chances for ecologically sound predator management."

The environmentalist continued, "It is easy to condemn indiscriminate poisoning, and to get sentimental about the coyote and call it 'God's dog,' as some Indians did. I have strong positive feelings—a kind of love—for coyotes. To keep things in perspective, though, a person ought to picture a calf being eaten by coyotes even as it is being born. And, unless you're a vegetarian, it should matter to you that coyotes kill ready-for-market lambs, then run off without eating a bite. I only hope that the sheepmen, the armchair environmentalists, the Washington bureaucrats and politicians will give the biologists enough time and money to figure a way out of this mess."

A two-month-old coyote pup peers warily from the family den near Logan, Utah.

By Gary A. Soucie

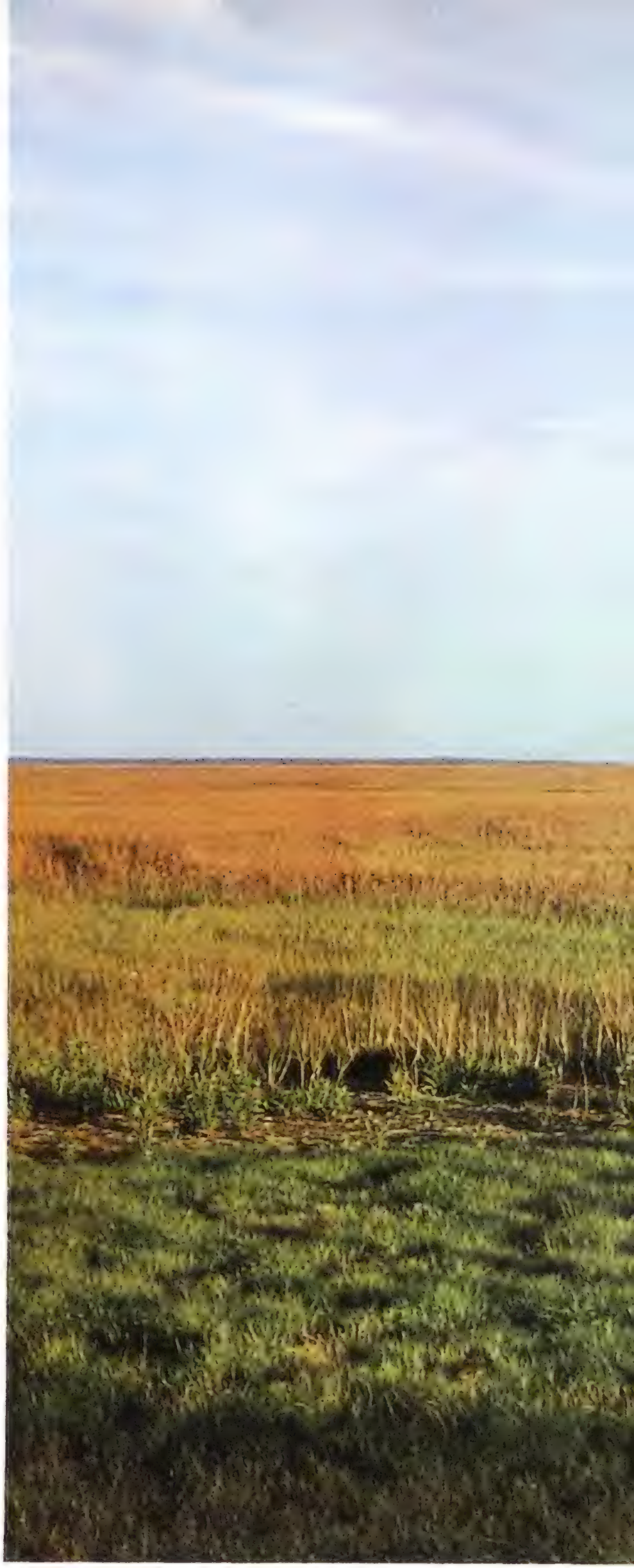
We can still save salt marshes of Georgia, Carolina

Developers are finally discovering the vast tidal land of the South, but scientists and conservationists have gotten there first

You can find salt marshes all along the drowned river valleys and barrier-protected lagoons and estuaries of the Atlantic coast—from the Maritimes south into northern Florida where the mangroves begin taking over the littoral margin—sinuous ribbons of salt-tolerant grasses and rushes and reeds uniquely capable of enduring the harsh intertidal environment of twice-daily inundation and exposure to the sun and drying winds. But nowhere else along that sweep of shoreline will you find anything like the salt marshes of South Carolina and Georgia, where they stretch along the coast in broad, undulating bands several miles wide. Eight hundred thousand acres of salt marsh, nearly half of all that remains along the entire East Coast, surpassed only by the Mississippi Delta marshes of Louisiana. "A world of marsh bordering a world of sea." Sidney Lanier called it:

> A league and a league of marsh-grass, waist-high,
> broad in the blade,
> Green, and all of a height, and unflecked with a
> light or a shade,
> Stretch leisurely off, in a pleasant plain,
> To the terminal blue of the main.

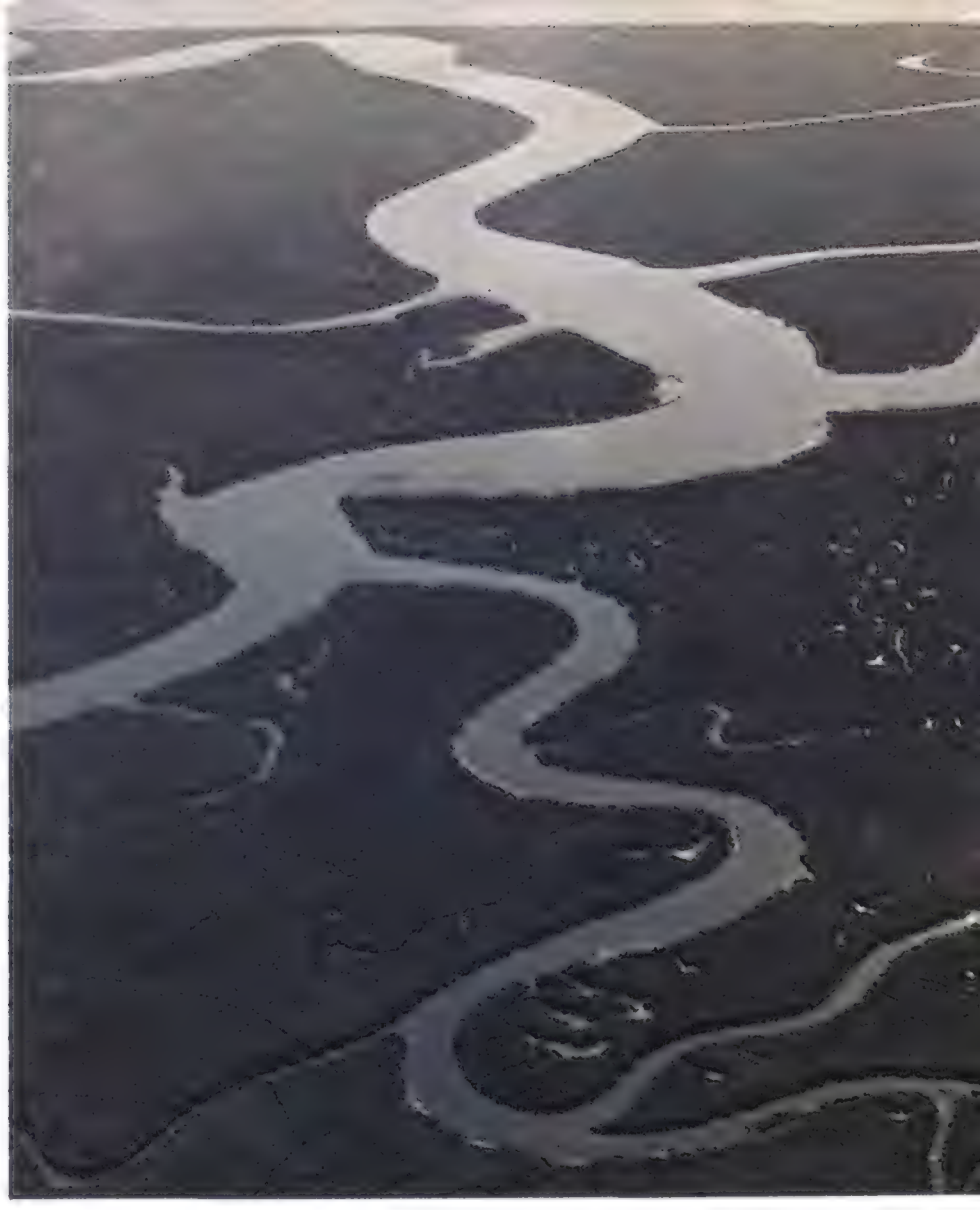
Here salt-marsh cordgrass reigns supreme—the *Spartina alterniflora* that grows only along the tidal creek banks and in the lowest, seawardmost portions of the northern marshes. It dominates virtually the whole marsh, from low water to the upper fringes near the limit of tidal influence where needlebrush, *Juncus roemerianus,* a plant unknown north of Maryland,



A great sea of cordgrass stretches to the horizon in Georgia's marshes of Glynn, celebrated by the

19th century poet Sidney Lanier, and in most areas such as the above, still little the worse for wear.

Photographs by Dan Guravich and Gary Soucie



Sun glints from sinuous waterways snaking through marsh, carrying silt into Altamara Sound (background).

phases into the bulrushes and reeds and sedges of the freshwater marshes.

Lanier's Oak (the "affable live-oak, leaning low," in whose shade the poet rested on a June afternoon in the mid-1870s contemplating "the greatness of God . . . within the range of the marshes, the liberal marshes of Glynn,") still stands out on the seaward edge of the town of Brunswick, Georgia, but it is isolated now in a little park cut off from its surroundings by the concrete lanes of U.S. highway 17 that sweep around it. The wall of the woods to the west has been broken by the standard monuments to America's automotive addiction: filling stations and fast-food franchises and the asphalt field of the Lanier Plaza shopping center.

Brunswick, and the other towns along the coast, have grown mightily since Lanier's day. The clerks and factory workers and salesmen and teachers now outnumber the fishermen, and the sea islands are falling one by one to the developers, but the marshes remain. The "length and the breadth and the sweep of the marshes of Glynn" are only a little the worse for Man's wear: They are a bit contaminated in places by trash, unburned boat fuels, sewage and industrial effluents like Toxaphene; they are dredged out here and there for navigation or to provide fill, their "vast sweet visage of space" only partially marred by a few utility poles, water tanks, bridge spans and other towering manifestations of Man's Old Testament dominion over the Earth.

People are beginning to understand the values of the salt marshes now and the necessity of protecting them (New Jersey Wetlands, SMITHSONIAN, March, 1972). In Carolina and Georgia the tidelands were spared the worst of the past. They didn't have the people to demand, or the money to afford, the extravagances of the heyday of mosquito control when, in 1933-36, New Jersey and Delaware and Maryland drained half a million acres of tidal marsh. And the two states still had enough coastal highland to ignore the marshes during the orgy of development that preceded and precipitated the environmental awakening of this decade. In the period 1954-68, while New York and Connecticut were witnessing the destruction through dredging and filling of about a quarter of their remaining marshes, Georgia and South Carolina sacrificed less than one percent of theirs. Still, smugness and complacency are unwarranted, for in that period the two states lost a total of nearly 5,000 acres. Rhode Island, which like Georgia lost 0.7 percent of its coastal wetlands, sacrificed 150 acres compared to Georgia's 2,700, while Connecticut's loss of 3,200 acres constituted 21.7 percent of what it had left.

The great province of the salt marshes stretches roughly from Georgetown, South Carolina, to Jacksonville, Florida. Here the coastal plain is extremely flat and the tidal range moderately high, exposing vast areas to tidal inundation. Dozens of rivers drain that rainy coastal plain, carrying away from the plowed fields, logged-off forests and cleared lands tons of silt

Other watery subjects which Gary Soucie has written about in previous issues of SMITHSONIAN *include the Great Dismal Swamp and the erosion of beaches.*

A snowy egret is apparently unperturbed by this sign of growing human "culture" in the tidal creeks.

and fine sediments that are deposited in the marshes and estuaries at about the same rate the Atlantic Ocean has been rising over the past 5,000 years or so. Here is a case where man's environmental folly might have helped the marshes at the expense of the mainland, for pre-Colonial explorers described these muddy red rivers as running clear and clean.

The flatness of the coastal plain extends out onto the continental shelf for several miles, giving the sediments plenty of shoal water for building marshes and robbing the ocean waves of their scouring force as they scrub across the shelf. The marshes and estuaries are further buffered from the ocean's might by the string of sea islands along the coast.

These southern salt marshes are not only bigger than their northern counterparts, but they are also more productive. With taller cordgrass growing faster in the southern climate and producing several crops a year, their detrital nutrient output borders on the fantastic. In the low marshes where the highest grasses grow, annual production of organic material exceeds ten tons per acre. Only the great coral reefs, Hawaiian sugarcane fields, and the finest rice paddies are in the same productivity league. Overall these marshes average about three to six tons per acre per year, half again to more than twice as much as that of Northern marshes, and nearly as much as the chernozem fields of the North American corn belt. Actually, the net productivity of the salt marshes is higher than that of cornfields, for, while the marshes receive the free energy subsidies of the sun and tides, the cornfields are subsidized by heavy inputs of human labor, bagged fertilizers and tractor fuel.

Slightly less than half of the nutrients produced by the detrital decay of the cordgrass, and by the action of bacteria in the marsh muds, is used to nourish the marsh itself; the rest is exported by the tides into the estuaries and out through the inlets into the sea to feed the marine ecosystem. Two-thirds of all the fish and shellfish species harvested commercially are, to one degree or another, estuarine dependent, as are most sport-fish species. Oysters and clams are full-time residents of the estuaries and marshes. Blue crabs and speckled sea trout divide their lifetimes between the estuaries and the shallow, nearshore waters of the continental shelf. Shad, striped bass and other anadromous species, although ocean-dwelling, migrate through the estuaries into fresh or brackish waters to spawn. Shrimp, menhaden and certain other species spawn in the ocean but their larvae or young migrate into the estuarine nurseries away from their natural predators to feed and develop until they return to the

On the shore where marsh gives way to the sea,
sea oats, some four feet tall, sway in the wind.

ocean. Estuarine cycles are remarkable in that predatory populations of adult fish tend to be lowest while some species are using the estuaries as nursery grounds. Even ocean-dwelling fish like haddock, tuna and ocean perch are indirectly dependent on the estuaries because they feed on nutrients and smaller species coming out of the estuaries.

Dockside value of landings by commercial fishermen in Georgia is something like $4 million a year, $10 million after value added in processing. Commercial fishing is even more important in South Carolina, where oysters alone yield gross profits of around $5 million annually and where shrimpers boost the state's economy by more than $10 million a year. The South Carolina Water Resources Commission conservatively estimates that saltwater sports anglers spend at least $15 million in the state.

Fishery yields are not the only benefits to man of the salt marshes. Resort and residential developers, now that people are getting used to seeing the marshes as something other than mosquito-breeding wastelands, are asking and getting higher prices for coastal lots with a view of the marsh than for those without. Migratory waterfowl winter in the marshes and some species breed there. Hunters, boaters and bird watchers are, like sports fishermen, increasingly important recreational users of the marsh.

As sediment sinks, the salt marshes help keep coastal harbors and inlets from shoaling. During hurricanes and tropical storms the salt marshes protect mainland shores by acting as storm-water reservoirs and by absorbing much of the energy of the storms' tidal bores. Dr. Eugene P. Odum, director of the University of Georgia's Institute of Ecology and the man who deserves a lion's share of the credit for bringing about our new understanding of the importance of salt marshes, claims that the highest economic values of the marsh to man are in its ability to treat wastes and recycle chemicals. Nitrates reaching the marsh as, say, runoff from fertilized fields are processed and released as free nitrogen gas back into the atmosphere whence they came. Similarly, harmful sulfates entering the marshes are converted to sulfides and sulfur, with oxygen as a byproduct.

Once the lonely pioneer, Dr. Odum now shares his scientific vigil over the marshes with hundreds of colleagues—estuarine ecologists, plant physiologists, ichthyologists, geochemists, coastal geologists, environmental geographers—and today one is as likely to encounter a Ph.D. candidate or a postdoctoral researcher out in the marsh as a fisherman, an oyster-tonger or a pleasure boater. And, as might be expected with so many researchers in the field, the "facts" about salt marshes are beginning to collide head-on.

Flux in the science of marshes

Dr. Herbert L. Windom, a marine geochemist at Skidaway Island, disagrees strenuously with Dr. Odum over using salt marshes as tertiary waste-treatment plants. "Salt marshes are much more sensitive to pollution than almost any other environment," he says, citing that there already is too much phosphorus in the Southern rivers flowing into the marshes, especially in relation to their nitrogen loads; that adding nutrients would increase the sediment load and make the marshes anaerobic; that toxic heavy metals settling out of waste effluents into marsh soils would be taken up by cordgrass and other marsh plants and released into the water column, where they would be available to more fragile marine organisms that would be harmed by them.

On the other hand, Dr. Windom believes that salt marshes are resilient to physical destruction, that cordgrass is the least fragile member of the salt marsh community, that its overall importance has been overrated, and that dredging and filling in the marshes can be done without its destruction and can even be used to promote the development of salt marshes. As a result, other marsh scientists criticize Dr. Windom for being "soft on dredging," and Dr. Robert J. Reimold, the ecologist who is in charge of the University of Georgia's Marine Institute on Sapelo Island, thinks Windom's idea of sprigging dredge spoil dumps with cordgrass shoots is all wrong, that instead of burning up energy trying to hand-cultivate spoil beds, the way to go is to create the conditions under which natural revegetation would occur.

Windom shrugs off criticism by ecologists: "Until the last few years most marsh research has been done by ecologists, who take a broad view but who don't necessarily understand it deeply."

The Odum-Windom-Reimold disagreements are cited not because they are remarkable but because they are not; they illustrate the considerable flux in which marsh science now finds itself. To a person who understands the nature of science this is hardly surprising. But to the legislators, administrators and concerned laymen in Georgia and South Carolina who

Loaded with shrimp and tailed by gulls, a fishing boat heads into port along the Intracoastal Canal.

are struggling with ways of bringing marsh and Man into harmony, the whole thing is confusing.

Even defining the salt marsh is highly problematical. Tide lines are neat and tidy on a map, but vague and imprecise out in the field. On a flat coastal plain, a difference of a few inches in elevation can mean the inclusion under or exclusion from legal protection or administrative jurisdiction of thousands of acres of wetland. Fresh waters just beyond the reach of salt water usually are tidal in nature, and the two states together have more than 100,000 acres of tidal fresh water marsh.

Most people agree that plant species are the best indicators of the salt marsh, but even they may not be definitive. Out in the salt marshes around Charleston I got a lesson from Captain Richard Porcher jr, a botanist at The Citadel. "Is this the marsh?" he asked while we were standing on a low dredge spoil bed along the Intracoastal Waterway. "Yes? No? Just a barren spoil dump. But look over here, cordgrass growing." Away from the spoil bed on a natural tide flat without any vegetation: "What about this, is this the

marsh? Nothing growing right here even though we are no higher than the cordgrass marsh all around." Over on the Wando River estuary, standing among the needlerushes and bulrushes: "Here's a tidal marsh, but is it salt marsh? *Juncus romerianus* grows in salt marshes, *Scirpus americanus* sometimes does. But there is no cordgrass here, but here is some freshwater cattail." Then slogging along knee-deep in mud through the cordgrass at low tide: "Now *this* is salt marsh, all right, no question about this."

The valid questions about the salt marshes, about which scientists don't always agree, continue to nag: Should salt marsh protection mean hands off every acre or should a certain percentage of the marsh be given over to economic development? Should some types of development be banned altogether while others are permitted? Should salt marsh protection involve fresh tidal marshes and beaches as well? Is pollution or dredging and filling the greater threat to the marshes? Should tidelands protection be considered separately or as part of a larger coastal zone management program? Which agency of government should have the ultimate decision whether to permit or deny a proposed use of the marsh? Where should the line be drawn between conflicting uses of the salt marshes for public recreation or private economic gain or preservation of natural land?

South Carolina's situation is particularly chaotic in the absence of any legislation covering the tidal marshlands (a source of embarrassment in state political circles, since Senator Ernest Hollings of South Carolina authored the federal Coastal Zone Management Act), and with at least five separate institutions doing independent marsh research. The situation in Georgia is at least better organized in that the state does have a Coastal Marshlands Protection Act, and the research institutions on Sapelo and Skidaway Islands and the Institute for Ecology are all part of the University of Georgia. Still, the bickering goes on in Georgia as it does in South Carolina. At each institution in both states the sentiment runs strong that, at its expense, all the others are overfunded. Scientists who moonlight as consultants to coastal developers or industries are denounced by others as "biostitutes."

Meanwhile, beyond the groves of academe, the battle continues with legislators, lawyers, conservationists, developers, industrialists, government administrators and county commissioners all flailing away at each other with conflicting scientific studies.

The problems aren't all scientific, of course. Perhaps the thorniest of all are legal, historical and political. Both states, relying on English common law, assert absolute ownership over the salt marshes and all intertidal lands, citing the Crown's reservation as public the waters of the river and the arms of the sea and submerged lands below the highwater mark, a trusteeship assumed by the original states after July 4, 1776. In both states the waters are murky because the kings, and after them the state governments, sometimes granted use permits or title to lands down to and even below mean low water.

In Georgia the situation is murkier still because the legislature in 1902 passed a law extending the ownership of lands along tidal waters to low water, an act now declared as having been unconstitutional and inapplicable to the salt marshes. In both states, landowners can validate a claim of ownership by presenting original documentary evidence of a Crown of England grant, a pretty tough act to muster. So landowners simply continue to assert their ownership to mean low water or take the matter to the courts.

The federal government is also involved, and on both sides of the question. The Corps of Engineers wants to dredge a navigation channel in South Carolina's Port Royal Sound, an unusually pure estuary, but is opposed by the National Oceanic and Atmospheric Administration. As of this writing, a ruling was due from the Secretary of the Army.

For all these problems and disputes, things are looking up. For many decades the salt marshes were ignored, but now, at least, the destiny of the salt marshes is a matter for general debate in the statehouses, in the media and on the sidewalks. What's more, the groping and the grappling are motivated, not by a sense of loss, but by a sense of discovery. Old ways die hard, even in the face of new wisdom. But die they always do.

Oysters emerge from the water as the tide goes out. These full time residents of the estuaries provide South Carolina with a $5 million business each year.

In her heyday, *Great Britain* carried six masts, but sails were auxiliary to her steam power.

She was the first large propeller-driven ship and the first built of iron to cross the Atlantic.

Scaffolding rises above badly rusted deck plates. Structural beams below still hold the hull together.

By Alfred Friendly

An ocean relic is given new life

Ruling queen of the seas 130 years ago, S.S. Great Britain *refused to die in exile and was brought home for restoration*

Beautiful? A rusted hulk, jagged holes in its mangy hide, shrouded in awkward scaffolding and stuffed within by a senseless skeleton of rotten beams and higgledy-piggledy planking—that's beautiful?

Yes, very beautiful indeed—to anyone with a feeling for symmetry and grace, a sense of history, an awe of genius and a reverence for pioneering achievement.

She is S.S. *Great Britain,* the world's first great luxury ocean liner, sitting in the same dry dock where she was launched more than 130 years ago. She is a double monument—first to a visionary who joined wild fantasy to superb engineering, and second, to later con-

Photographs by Terence Spencer

servators who rescued something fine that had already gone down the drain. The great ship, more than twice as large as any ever floated before and with more "firsts" to her credit than any ever built since, was scuttled off the gale-ridden Falkland Islands, almost halfway around the world from where she was built. She has been towed back home—a stupendous feat of seamanship in itself—and is being restored by loving hands to something of the creation she once was.

Big as she is—322 feet, 3,000 tons, a behemoth for her time and still no cockleshell—even in her present drab state she has a dancer's grace, with clipper lines along keel and bow and an outward swell, a "tumblehome," of her hull, bespeaking spaciousness below deck. She was the first iron ship to cross the Atlantic by steam; the first ocean-going ship powered by screw propeller; the first with watertight transverse bulkheads, balanced rudder, electric log, wire rigging, double bottom, hollow propeller shaft and hinged masts. We may take the word of Richard Goold-Adams, chairman of the group that saved and is restoring her, that *Great Britain* "probably carried the whole contemporary science of marine engineering further forward in one stride than any other ship before or since."

She was created by Isambard Kingdom Brunel, greatest engineer of Victorian times, and you start your pilgrimage to her appropriately enough from Paddington Station in London, designed by Brunel, and travel over the Great Western Railway, of which he engineered every foot of track and every bridge, every cut and tunnel. You end at Bristol, again in a station he designed, and proceed to a dry dock he built for a ship so immense and so unprecedented that no shipbuilding firm of the day would undertake to construct it. He had to do it himself.

Brunel was a little man in an outsized stovepipe hat, a dynamo who chain-smoked cigars and gesticulated like a Frenchman. He was, indeed, half French. His father, Sir Marc Isambard Brunel, settled in England and became one of its foremost engineers, and young Isambard studied both in England and France. By the time he was 20 he was his father's first assistant, virtually in charge of the then-famous project to drive the first tunnel under the Thames. A cave-in and flood in the tunnel almost killed him.

He became a man of iron, in more ways than one, and his principal surviving monuments across the British landscape are of iron: his railroads and superb bridges, outrageously bold for their day and age.

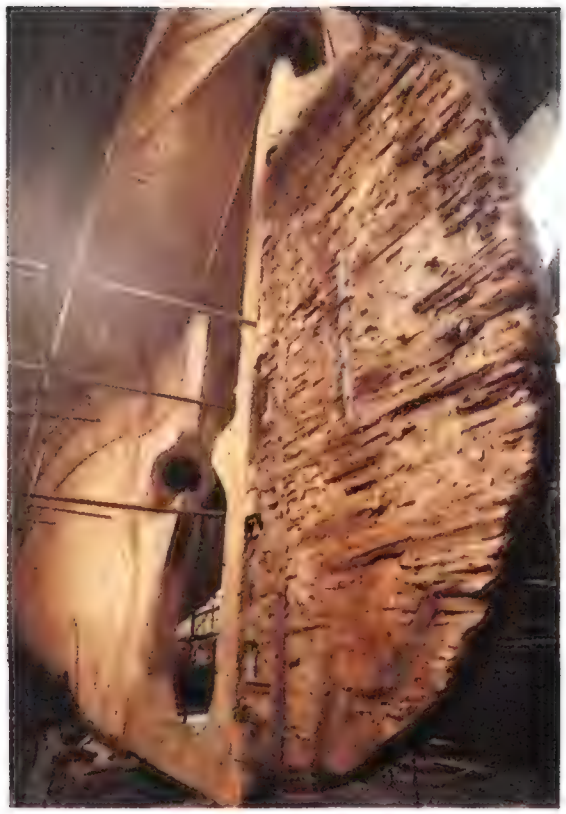
The first of his ships was still made of wood. She was *Great Western,* a paddle-wheeler of 1,340 tons. She became the first ship to cross the Atlantic by steam. For 20 years, other vessels, notably the American ship *Savannah,* had made trans-Atlantic voyages using steam as auxiliary power. *Sirius,* a ship racing *Great Western* on the latter's maiden voyage, was also a steamer and beat Brunel's craft by a few hours. But she came in under sail after exhausting her fuel. (In their enthusiasm the crew even burned her masts.) *Great Western* had 200 tons of coal still in her bunkers when she chuffed up the East River, April 23, 1838, 15 days and five hours out of Bristol. Predictably, the feat sent James Gordon Bennett into paroxysms of purple prose in the *New York Herald.*

Great Western was barely afloat before Brunel conceived of a craft twice as large, and started work on it. He had seen a smaller iron ship, used in coastal traffic, and resolved that his new one, to be called *City of New York,* should be so constructed. The plates were to be overlapping (clinker-built).

Initially, she was to be a paddle-wheeler and was partly built—by then she was to be called *Mammoth*—with places for engines amidships, when Brunel spied a little three-masted schooner, *Archimedes,* with auxiliary power driving not paddle wheels but a newly invented screw propeller. He chartered *Archimedes* at once for six months of trials and resolved to employ the new propulsion for his ship, its name now changed again to *Great Britain.*

It was daring enough to envision swinging 1,000-horsepower engines around in order to drive a propeller under the stern instead of side paddles. But the huge problem was to carry the power back to the propeller along a drive shaft half the length of the keel. Brunel turned the engines on their base and redesigned their four cylinders. Operating at a steam pressure of 15 pounds per square inch, they drove pistons upward to a crankshaft nearly at deck level. On this

Mr. Friendly's last article, in October 1973, was on the Israel Museum. Last July, Mr. Spencer described the new replica of Drake's Golden Hinde.



Great Britain's rudder (left) was the first to be balanced for easy turning. View belowdecks (center) shows sound structure. Ship's bell is original; propeller (right) is a replica of Brunel's six-blader.

was mounted an 18-foot drum with a quadruple chain drive running back down again to a smaller drum on the 30-inch tubular propeller shaft in the bowels of the ship. It extended aft almost 62 feet, connecting with a smaller solid shaft going through the stern to the propeller. Thus geared up, the 18 rpm of the engines produced a speed of about 11 knots (or better, when sails were set and the wind favored). The upper drum, extending slightly above the weather deck, was housed under a special glassed-in construction. Here hypnotized passengers peered for hours on end at the chains turning on the great wheel.

Great Britain was launched July 19, 1843, with enormous fanfare—Albert, the Prince Consort, did the ceremonial smashing of the champagne bottle—and had a voyage of hairbreadth escapes down the too-narrow passages of Bristol harbor and the Avon. At one point, it appears that the upper stone courses of a canal lock had to be dismantled to let the ship through.

She was the wonder of the world: black hull with white trim and six masts, a single funnel, six-bladed propeller, grand promenade flanked by elegant staterooms, a dining saloon seating 360. She had a crew of 130, 30 of them stewards; she even had a separate set of cabins, with lounge and facilities, for unescorted ladies, so that they might never be exposed in their unchaperoned Victorian vulnerability to male eyes and stratagems. Up to that time, most transatlantic voyagers were obliged to bring their own linen and blankets and their own supplies of food and water. They bunked down and fended for themselves.

But the *Great Britain* was star-crossed. Bad luck began even with the launching. A too-eager tug snapped a line while she was still tethered to the dry dock. She was plagued with engine and propeller troubles on her second and third Atlantic trips. The fourth was satisfactory—she did both legs in 13½ days—but on the fifth a faulty chart sent her aground in Dundrum Bay, Northern Ireland. She stood on the sands, storm-buffeted, for almost a year, saved partially by a novel mattress of posts and faggots that Brunel invented on the spot. The fact that she survived at all was a triumph for Brunel; no wooden ship could have done it. Her refloating was a triumph, too, carried out with prodigious ingenuity by levers and counterweights. But when she limped back to Liverpool, the estimated cost of repairs was beyond the resources of her owners. The Great Western Steamship Co. went bankrupt.

The big ship was idle until 1850, when she was sold for a fraction of her original cost. The new owners took the backward but economical step of making her a three-masted square-rigged sailing ship with auxiliary steam power from a new and better set of engines. Thereupon, she was once again a success, principally as a passenger-cargo carrier to Melbourne, making 32 record-breaking trips until 1876. She probably carried more immigrants to Australia than any other vessel in the 19th century (it is estimated that a quarter of a million of today's Australians are descended from *Great Britain* passengers), and transported so much gold back that she came to be known as "the floating bank."

Classic clipper bow had lost all elegance when ship, her old wood sheathing still sound, was rescued.

But by the last quarter of the century, *Great Britain* was obsolescent. She was laid up in 1876 and not put into use again until six years later when, stripped of her machinery, she became a full-rigged cargo ship.

Under sail she made two trips to San Francisco, carrying out coal and bringing back wheat. But on the 47th voyage of her history, she met heavy weather off Cape Horn and spent a vain month trying to round it. She eventually gave up and put back to Stanley, in the Falkland Islands, on May 25, 1886.

Repair facilities were inadequate and she was officially declared a total wreck. She was sold to a local company, which used her for 47 years as a floating warehouse for wool and coal. She had a brief moment of reflected glory when she refueled H.M.S. *Invincible* and H.M.S. *Inflexible* before those great cruisers began the battle of the Falkland Islands at the outset of World War I.

In 1937 she was towed away a few miles to a cove and scuttled. She sank a few feet into the sand; much of her decking was torn out to make a bridge and a jetty at Stanley. No one knows how long it might have taken for her to disintegrate. But by 1968, when salvage efforts began, her hull was still staunch.

Ever since 1952, when his imagination was caught by a print of her in his offices, a British naval architect, Ewan Corlett, had dreamed of rescuing the great old ship and bringing her back home. Ultimately, a company was formed to do it, and in 1969 a British millionaire, Jack Hayward, offered $360,000 for the project. Goold-Adams, a British businessman, had seen the published notice of the organization meeting and dropped in to attend. He was promptly arm-twisted to become head of the project and has devoted a large and joyous part of his life to it ever since.

Meantime, a group of Americans had the same thought, hoping to bring the ship back to the San Francisco Maritime Museum. They are said to have spent $100,000 in preliminary studies, including two trips to the Falklands. But once the British project was established, the Americans stood aside, pooled their information with the British and lent full cooperation.

Early in 1970, after heroic underwater repairs, the huge hulk, now more or less watertight, was refloated. But she was in no condition to be towed on her own bottom on a 7,500-mile voyage. Instead, she was skillfully maneuvered by an Anglo-German team onto a huge pontoon raft and towed on a historic six-and-a-half week voyage from the shallows where she had lain 33 years on the fringe of the Antarctic Circle to Avonmouth, on the Bristol channel. Finally, once again riding on her own hull, she was towed up the Avon, down which she had sailed 127 years before, to the enormous manger where she was born.

The restoration now going on involves infusions of plastic solutions into the porous wooden members, retaining the original wood but preserving it. Hydraulic pressure cleaning takes scale and rust off iron plates. Six new masts are being installed to reproduce the ship as Brunel originally made it.

Scores of firms have offered their products; the Royal Engineers have put their technicians to rebuilding much of the woodwork; forest operators have donated masts and bowsprit. Work proceeds deliberately, partly because funds are not abundant, but, more importantly, because highly skilled craftsmen are in short supply. And to tell the whole truth, Goold-Adams, Corlett and their associates are in no unseemly rush to slap the job through to a finish and wash their hands of it. They conceive of S.S. *Great Britain* not as a dead relic but as a living thing with a continuous future.

Restored bow suggests what is to come. Devices on trail board symbolize speed and industry.

By Peter Chew

Coaching is now growth hobby

Driving a four-in-hand is a booming sport that proves it takes more than a whippersnapper to handle a spirited quartet of dapple-grays

Barouche and pair of Chauncey Stillman of New York, driven postillion, leads a procession of coaches up

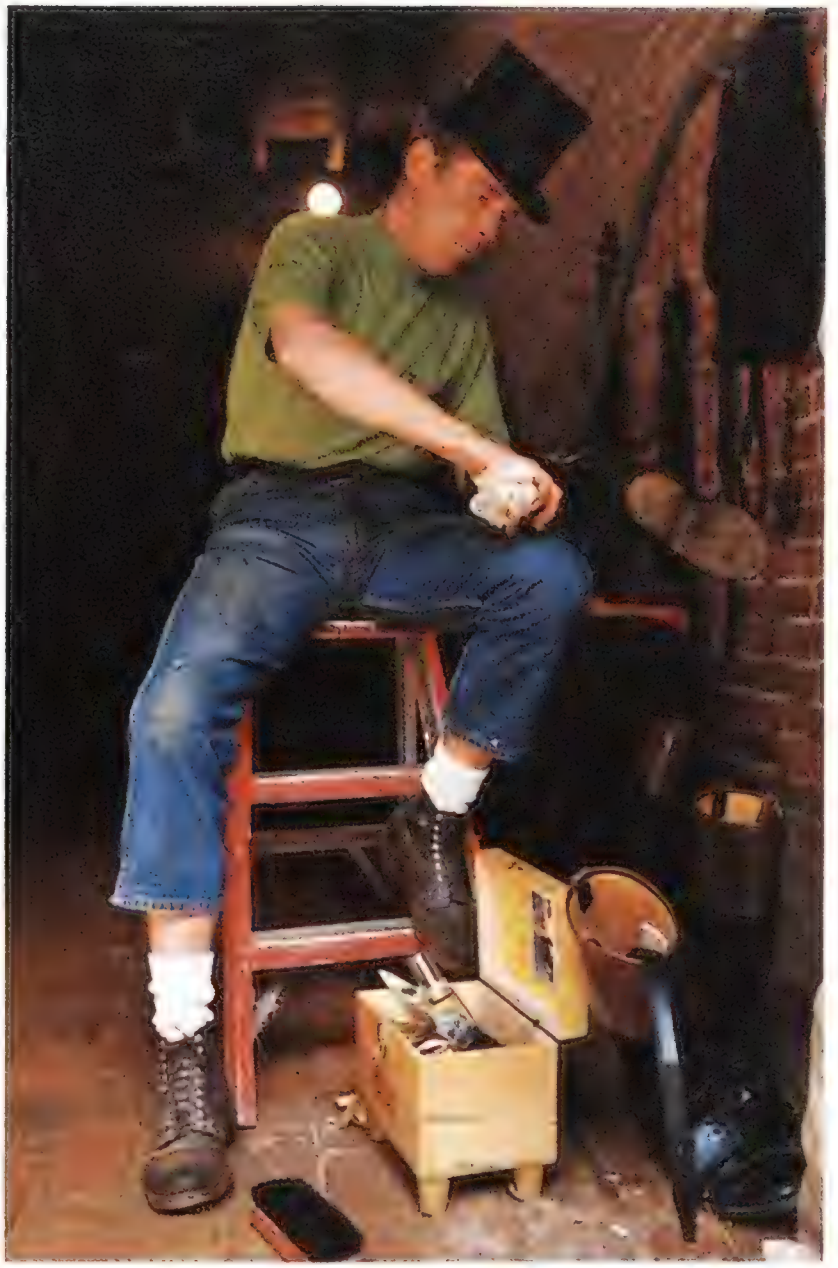
The cheerful notes of a coach horn break the autumnal stillness of a back-country road in Virginia's wooded Tidewater country. Then come the muted thunder of hoofbeats, the rattle of bars and pole chains, the whirring of spoked wheels on hard dirt road, the rollicking laughter of people in party mood. The *Nimrod* rounds the bend, an English road coach drawn by four dapple-gray Oldenburgs, with owner Jack Seabrook, a New Jerseyan, on the box seat. Seabrook is elegant in gray top hat, blue cornflower boutonniere, reins gathered in gloved left hand, whip in right, wife Elizabeth beside him. Behind sit a dozen animated guests, including the Earl of Westmorland, who bears a startling resemblance to Winston Churchill in his early 40s.

The Earl pulls me into the convivial group on top of the coach. "Sit tight!" says Seabrook. The coach gathers speed steadily. Soon it's tooling along at 10 miles per hour. But one quickly discovers that 10 miles per hour on a 3,000-pound coach, swaying back and forth on a crowned road, can feel like 50. "Branches!" someone warns. We all duck in time—barely.

We're followed by nearly a dozen coaches and carriages drawn by high-stepping Hackneys, sturdy Morgans, standardbred refugees from the trotting tracks, white Welsh ponies and an Arabian pulling a Stanhope gig. Farm children race to the roadside as we go by. Oncoming cars pull abruptly off the road, startled faces popping from their windows. A state policeman halts traffic while the caravan crosses and travels briefly along a highway. Aboard the Seabrook coach we feel self-conscious, yet more than faintly superior to the mere mortals below in air-conditioned automobiles who've sealed themselves off from the glorious Indian summer day.

The equipages have just left Sabine Hall plantation on the Rappahannock River in Virginia and are now bound for Mt. Airy, the baronial 18th-century seat of the Tayloe family. Frosted mint juleps and a picnic lunch await beneath towering trees that once shaded Washingtons, Carters and Randolphs. This festive journey through history is a prelude to a coaching day at nearby Stratford Plantation for the benefit of the foundation that maintains Robert E. Lee's birthplace as a national monument. Next day, 3,000 persons will spread box lunches on the vast meadow before the magnificent Georgian mansion overlooking the Potomac, while some of the best whips in America put horses, coaches and carriages through their paces—George Weymouth, Chauncey Stillman, James K.

the grassy avenue to Stratford Hall, Robert E. Lee's birthplace. Nicoll coach follows, then Seabrooks'.



Polishing his boots, this guard wears "fatigues"—except for top hat, precious symbol of rank.

Robinson jr., Dr. E.D. Vere Nicoll, Clement Hoopes, Mrs. Stetson Haverstick, J. Cecil Ferguson, Mrs. J. Austin duPont and John Seabrook.

"Coaching is very much on the increase all over the world," says Paul Downing, editor of *The Carriage Journal.* "It's like a plant that's starting to blossom." The Carriage Association of America has grown from a few score members at its inception in the early 1960s to more than 2,000 today. Last summer, 35 four-in-hands from 16 nations, including the United States, showed up in Switzerland to take part in a three-day competition that included a grueling marathon event. Four-in-hand driving continues to flourish, too, in Communist countries such as Hungary and Poland. In Czechoslovakia the state operates stables and breeding farms.

Prince Philip, Duke of Edinburgh, has become a convert. Pursuing the sport with his characteristic dash, Philip has been through three spectacular smash-ups to date.

Most American driving enthusiasts are of modest means, like the owners of small sailboats. They live in, say, New Hampshire or Wisconsin, and drive a bewildering variety of buggies, wagonettes, dogcarts and other small vehicles which they have lovingly restored. But coaching and driving such as that displayed at Stratford is of another order. Mastery of a four-in-hand remains for most Americans and Europeans the ultimate achievement, analagous to sailing a racing yacht. Like a top-flight skipper, the man or woman on the box must display great skill, courage and poise, and must have a keen depth of vision.

Four reins are needed to drive a team of four horses, for though each of the four bits requires two reins, they are joined in such a way that a pull on one rein will turn the heads of both wheelers or of both leaders. The reins to the leaders pass through rings on the

Peter Chew wrote about the great stallion Lexington in last May's SMITHSONIAN.

Photographs by Dennis Brack

harnesses of the wheelers. All four reins are held between the fingers of the driver's left hand.

With his right hand—his whip hand—the driver may if necessary reach over and handle individual reins to help in tricky maneuvers like steep turns or figure-eights, for the coach responds better if the leaders make their turn a bit before the wheelers. Generally speaking, the leaders initiate changes in direction, whereas the wheelers, thanks to a chain that links them to the forward end of the pole, are responsible for helping to stop the coach. With a tug on the proper reins, they will hold up and start pulling back to slow the coach. In simple straight-and-level driving, the idea is to keep the horses looking forward and pulling evenly to share the load.

An expert whip can guide his coach-and-four through figure-eights and other intricacies with his left hand alone. (A *truly* expert whip, I'm told, can appear to be driving with his left hand, while slyly employing the right.)

It goes without saying that a whip must have a thorough knowledge of and affection for horses. Seabrook's Oldenburgs—the same German breed as the Windsor Greys that draw Britain's royal coach—weigh in the neighborhood of 1,300 pounds apiece, and each has a mind of its own. Generally speaking, lead horses must be bold and alert, yet acutely sensitive to rein and voice commands. The wheelers should be somewhat bigger, stronger and more stolid, for they bear the weight going up and down hills.

Like other antiques and works of art, coaches and carriages have soared in value—into the tens of thousands of dollars. The wheelwright and the harness maker have all but disappeared, and the few who do exist have 12-month back orders. Restoration of a fine coach or carriage can prove costly indeed.

Nimrod was built by Shanks & Co. of London after the turn of the century, when the motor vehicle had already spelled the end of the road and mail coach. Even so, three wealthy British sportsmen put *Nimrod* and a similar coach on a regularly scheduled commercial run over the 65 miles between London and Oxford for a season or two before 1929 snuffed out all such whimsy.

William Radebaugh, aboard the Clement Hoopes' park drag, sounds off on a coach horn.

British-born Tom Ryder, author of *On the Box Seat* and coaching expert, acted as commentator.

Similarly, before World War I killed off coaching and carriage driving as an American sport, a handful of young bloods—among them Alfred Gwynne Vanderbilt and Henry Hazen Hyde—operated commercial road coaches from New York City to outlying points in Westchester County and New Jersey. Hyde had earlier attained a measure of immortality in his arcane pastime by driving his coach *Liberty* over the Swiss Alps to the Italian lake country and back again.

The gleaming *Nimrod* is surpassingly beautiful with its black trim, bright red undercarriage and pole, big coach lamps, glistening brass fittings and cream-colored doors, and rear trunk or "boot" on which Cecil Aldin, English sporting artist, once rendered a dog fox, vixen and foxhound, since replaced by copies.

"The whole effect is bright and sporting without being gaudy," concedes Tom Ryder, the coaching expert and onetime British cavalryman who, with his wife Joyce, handles the Seabrooks' extensive coaching operation. Seabrook, 57, is chairman and chief executive officer of the International Utilities Corporation. On his 4,200-acre farm in the flat vegetable farming country of southern New Jersey, he operates a collection of 25 coaches and carriages besides *Nimrod*.

An important part of coaching's appeal is the great amount of tradition and custom that must be mastered, and enough lore to spend a lifetime assimilating. "When the horses are right, the coach is right, the passengers are right, the effect is that of a ballet, or a symphony," says Seabrook. When things are "wrong," the effect can be ludicrous—or even terrifying.

Dean Noonkester, guard for Mrs. J. Austin duPont, carries a waybill pouch for watch, boot-key.

Bowler-hatted guard for Dr. and Mrs. E.D. Vere Nicoll of Charlottesville, Virginia, is Willard Agee.

Nicoll's coach, with a stick basket lashed to its side, heads across a stretch of Stratford lawn.

Coaching is booming

A few years ago the Seabrooks and some guests were rattling along a New Jersey highway on a coach behind four young, green horses. Because the horses had been performing with surprising maturity, Seabrook momentarily turned over the box seat to a young guest to let him get a feel of the "ribbons." A few minutes later a truck loosely loaded with steel girders—a red flag flapping wildly from the end of the longest beam—careened past the coach at high speed.

"The horses plunged, then shied to the right, and the wheels went off the hardtop," recalls Seabrook. "The pole broke, the wheelers went down, tearing their harness off, and the coach pitched over into a plowed field."

The horses then bolted. The Seabrooks, Tom Ryder and a groom hit the ground to run after the horses, and managed to catch them before harm could come to them on the busy highway. A bystander had meanwhile telephoned a rescue squad, and the Seabrooks' shaken guests were sped to a hospital for observation, though luckily no one was injured. Two young New Jersey State policemen rocketed to the scene in their cruiser and were soon having trouble filling out the standard accident report form: *Style of Vehicle*: "Park Drag"; *Horsepower*: "Four. . . ."

Tom Ryder says in his *On the Box Seat: A Manual of Driving*: "He must be a dull clod whose pulse does not quicken at the sight of a coach-and-four bowling along the road, while to be on the box seat is to be raised to an eminence altogether ultra-human—among the Gods, in fact! It was the glamour of the four-in-hand that first roused the interest of the amateur in the art of driving. . . . Even when horses drew almost every vehicle on the roads, a coach-and-four would attract a retinue of cartwheeling urchins in its wake, and cause every head to turn."

But it was Benjamin Ladd Cook, a fine amateur coachman of decades past, who had the last word about coaching: "Perhaps it is a mild and harmless form of insanity; it is so looked upon by others."

Park drag of Mr. and Mrs. James K. Robinson passes in front of the Lee family's Stratford Hall.

Jack Seabrook deftly guides his heavy road coach, *Nimrod*, drawn by matched Oldenburgs.

Don José Fénykövi, left, and Mario, his gun bearer, were photographed after killing elephant in 1955.

By Thomas Dozier

'Our elephant'—how it came here

The largest of its species ever recorded greets Museum of Natural History visitors—a trip from Angola to the Mall

Thomas Dozier's article on the mystery of Columbus' bones appeared in SMITHSONIAN, *October 1974.*

On my family visits to Washington, D.C., for almost 20 years now, the climax of the tour comes when, having paid due reverence to Washington, Lincoln and Jefferson, the cry goes up from one of the children (or, more lately, grandchildren): "Now, let's go and see *our* elephant!"

The pachyderm so possessively referred to is the great stuffed beast that stands, trunk raised and apparently about to charge, in the rotunda of the Smithsonian Institution's Museum of Natural History. At the base of the figure is an inscription certifying that this is the largest elephant ever recorded and giving his dimensions when alive: height from ground to withers, 13 feet, 2 inches. From trunk tip to tail end, the skin measured 33 feet, 2 inches. Of course, the elephant is not really *ours,* but I did have something to do with getting it from the jungles of Angola, the Portuguese colony in southwest Africa, to its present place beneath the dome.

In 1955 I was stationed in Madrid as a foreign correspondent for Time Inc., which publishes *Sports Illustrated.* There I met an affable and obviously affluent gentleman named José Fénykövi. Born in Hungary, Fénykövi had some years earlier abandoned his native land in favor of the more congenial climate of Spain, where with hard work and the right personal connections he soon made a fortune as a businessman. Then in his sixties, Don José had a healthy, outdoors

Familiar to millions of tourists, the elephant is the first thing seen when entering from the Mall.

look that made him seem 20 years younger. I soon found out why.

Fénykövi's passion was big-game hunting. Every year, he and his wife left their comfortable home in Madrid to spend three or four months on their ranch in Angola. Each spring they returned with new trophies and had to face the problem of where to put them. Their villa, only a few houses removed from our own in the Colonia El Viso, bulged with mementoes of these annual safaris, many of them the remains of what are now, unhappily, endangered species.

Although I did not share Don José's hunting enthusiasm (and certainly few today celebrate this particular sport, which is fast approaching its twilight years), the Fénykövis were close neighbors and surpassingly hospitable. So our pleasant acquaintance ripened and we saw each other frequently. In the fall of 1955, we attended a farewell party for the Fénykövis before they took off for Africa. Don José pulled me aside and confided in a whisper: "When we return in the spring, I may have a big story for you." I expressed polite interest but decided not to hold my breath. Early the following May, Fénykövi telephoned to ask us over for drinks, saying, "I think I've got that story for you now."

In the fall of 1954, while hunting in a remote area of Angola, he had come across the huge footprint of an elephant bigger than any land animal hitherto on record. He had not been able to track the beast at that time because he did not have the men and equipment to skin and transport a trophy so enormous.

A year later, equipped with a huge truck and a crew of six men, Fénykövi had returned to the same spot where he had first noticed the spoor, counting on the habit of old rogue males of following the same trails to watering and grazing spots, not infrequently accompanied by a younger bull that had failed to become master of a family group. Sure enough, there was the trail, with signs showing that he was accompanied by a smaller bull, sharing his life as an outlaw.

After a day of tracking, Fénykövi caught sight of the two elephants on the second morning of the hunt. "There they were, not a hundred yards ahead of us. They were quite calm, lolling under some tall trees, slowly moving their huge ears in a fanlike motion. The smaller was an enormous beast, but *my* elephant was beyond my imagination." Approaching to within 65 yards of the animals, downwind and silently, Fénykövi and his gun bearer, Mario, blasted away, hitting both elephants several times. Instead of charging, the two elephants took off through the brush.

An all-day chase followed. The pace set by the fleeing animals all but finished Don José, who was by then 65. Just before sundown, the hunters brought down the elephants. The bigger of the two proved beyond doubt to be what Don José had thought for a year—

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To support his claim, Fénykövi brought out an affidavit, sworn to before the president of the Angola Game Commission and legalized by the U.S. Consulate in Luanda, listing the basic dimensions of the beast. He also brought out, at great cost in human labor and ocean freight charges, the skin, the skull with tusks, other essential bones and the four huge feet of his prize. From the smaller bull slain at the same time, he brought only the tusks and the feet.

One look at the enormous skin, combined with the affidavit, was enough. I sent off a cable to my home office.

After a week of linguistic struggle translating from Hungarian to Spanish to English, we had Fénykövi's manuscript in readable form, and I sent it off to *Sports Illustrated*, which published it in June 1956. To Don José's surprised delight—for he was a multimillionaire and had not asked for payment—the magazine sent him a check. When I delivered it to

One of the feet measured 24 inches across.
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him, he asked how much had I received for all my work in getting the story into English. When I explained that, since I was on a salaried staff, I was not entitled to extra payment, he offered to split his check with me. I told him this would be unethical. He looked puzzled and declared: "But you must have something as a souvenir of this adventure."

Two days later, a chauffeured Rolls-Royce pulled up before our house and the uniformed driver presented himself at the front door with an enormously bulky package wrapped in layers of delicate white tissue. Unwrapped, it proved to be a foot of the big elephant's companion, mounted in sterling silver and with an inscription: "To Tom Dozier, thanking him for his help. José Fénykövi." Later, in his home, Fénykövi explained that he felt strongly that the big elephant should be presented to some suitable museum willing to mount it and put it on show for the public.

"I couldn't very well put it in here," he said, "even if I could find the experts to mount it properly." What about a museum in America? Did I know of one that might be receptive to the gift of more than two tons of elephant skin and bones? He had already had some inquiries. What did I know of the Smithsonian Institution in Washington?

"The Smithsonian would be an ideal place," I said. And so the Smithsonian got the big elephant.

It is also why, with some small justification, my family always calls the huge beast "our elephant."

The author with the foot of the smaller companion of the record elephant.

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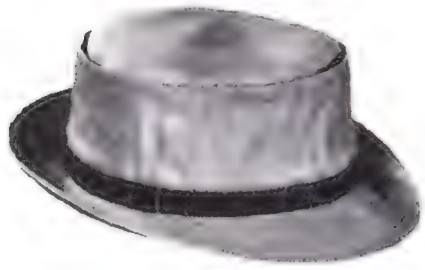

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Book reviews

William Penn
Harry Emerson Wildes
(Macmillan, $14.95)

The Most Dangerous Man in America: Scenes from the Life of Benjamin Franklin
Catherine Drinker Bowen
(Atlantic-Little, Brown, $8.95)

William Penn and Benjamin Franklin, living a century apart, stand as boundary stakes at each end of an American spectrum—one man a bit of a utopian, the other intensely practical. The two Philadelphians nourished in the New World much that was admirable in the English tradition—notably the passion for the rights of person, property and conscience.

Closely associated with the colony where neither was native, they were anything but provincials. Penn had a part in founding New Jersey and Delaware as well as being Proprietor of Pennsylvania. Franklin was colonial agent in London for Georgia, New Jersey, Massachusetts and Pennsylvania. Penn had a plan for uniting Europe, and Franklin tried to organize the United Colonies 22 years before Independence. Strangely, Penn (1644-1718) lived in America only three years and eight months; Franklin (1706-1790 lived 30 years in Europe.

Pennsylvania was named for the proprietor's father, Admiral Sir William Penn, who got his commission from Cromwell and his knighthood from Charles II. At 15, the son accompanied the father to Holland to bring home the exiled monarch. Some 21 years later, in 1680, Penn received his charter of some 45,000 square miles of American territory as settlement on a debt of £16,000 which the king owed to the admiral.

Between these events, Penn became converted to Quakerism, served two prison terms for nonconformity and supported a republican for Parliament. He truly said of the eccentric, pacificist Friends, "The government was anxious to be rid of us at so cheap a price." Ideas which Penn transported to America included near-universal suffrage for Christian men, religious tolerance, challenging of jurors, a ban on imprisonment for debt and capital punishment for treason, and the practice of collective bargaining with the Indians.

Benjamin Franklin was called "dangerous" by a later proprietor, Thomas Penn. Ben threatened all political opponents mainly because his cheerful good sense was a deadly weapon against nonsense and oppression. The late Mrs. Bowen wisely avoids another full-treatment biography of this legendary personality. Her "scenes" are glimpses of a man in motion. Though she finished the book on her deathbed, Franklin never comes more alive than under her hand. The chapters catch him as a 16-year-old satirist in Boston, a 40-year-old kite-flyer in Philadelphia, a planner of union at the Albany Congress of 1754, a militia officer in the field, a representative for colonies in London and a defendant in the Cockpit before the Privy Council.

Since the work is a study in genius, it has no need for continuity. Mrs. Bowen admires Ben's book-learning, but weighs Thomas Carlyle's notion that "original men" have a peculiarity of communicating "with the universe at first-hand." She rejoices that Franklin, almost alone among great persons, had no tragic sense of life. He would not live, nor wish anybody to live, without happiness. "Something in Franklin's nature, the way his blood ran in his veins, demanded it," says this great lady of letters.

—Holmes Alexander
Columnist and biographer

The Golden Dragon: Alfred the Great and His Times
Alf J. Mapp jr.
Woodcuts by Bruce Carter
(Open Court $8.95)

There is one story most of us know about the only king the English ever dubbed Great: that of Alfred and the cakes. Once

My name is Tony Jones. I just quit my job as Associate Editor of Harper's Magazine because I had an offer I couldn't refuse.

You see, for some time now I've been hoping to start an entirely new kind of publication. Now the opportunity is here—*if* I can persuade you to help me make the most of it.

No, not by subscribing. I need writers. Researchers. Editors.

Requirements: You are on your own.

And by you, I mean *you*. The new publication I'm asking you to help get started will be produced by its readers. By you, I hope.

As a matter of fact, the whole idea hinges on whether or not you contribute. Let me give you some background:

I was proud to work on Harper's Magazine, and I worked hard on it, but Harper's and other top magazines are committed to publishing the "best" writers in the world. This is understandable. And I agree we need this kind of source.

But this policy locks out communication of another, and in my opinion just as necessary, sort—different, honest, independent messages from the great numbers of intelligent and involved men and women who don't happen to be writers who know editors.

I want to offer a variety of communications from real people about just about anything. Short and pithy. Or longer if it plays that way. I'd have more by-lines than any other publication in the world. *If* my readers really did contribute.

In a real sense, this communication would be a collection of points of view. A swatch of our consciousness. An ongoing biopsy of our civilization.

When I announced my intention to Russell Barnard, the publisher of Harper's, he pledged that if I could actually develop the kind of magazine I wanted, he would publish it.

So I've decided to revive the famous HARPER'S WEEKLY, a national newspaper that flourished concurrently with the monthly Harper's Magazine from 1857 to 1916.

The people who ran that old weekly had the temerity to call it "a journal of civilization." Well, that is exactly what I have in mind for the new Harper's Weekly.

I want *you,* its reader, to write for it. I want you to write about your point of view from where you are. If you are a businessman and you want to talk about business, go ahead. If you are a housewife and you want to write about the effects of permissiveness on children, I think you are highly qualified. If you are a doctor who wants to pick up a pen and write a piece on your secret desire to become a hod carrier, I think it would be interesting.

Do you see it? A magazine containing people's thoughts and shouts. A kind of extended variant of the Op-Ed page of The New York Times, the letters to the editors of all times, hubbubby, and reflective of our civilization.

Frankly, many "experts" say Harper's Weekly doesn't have a chance. Reason? That you won't believe that I really mean what I say about *you* writing for it or researching for it.

Friend, I not only mean it, I mean it so much that *my* main worry about this enterprise is that you *won't* contribute.

I believe we need more exchange. We need more men and women of letters. People who can sit down and think something through and then write about it—not necessarily for posterity but to get the rest of us *thinking.*

Look, I'm also going to go out and buttonhole a person I think we should hear from who may not be a subscriber. And ask him to write. And I'm thinking of challenging some young artists to see if they can do as well with cartoons as old Thomas Nast did. I reserve rights like that. But once again, reader friend, the nub of the magazine will be your contributions, clips, original writing, or responses to other writing.

I've always felt it was a distinctly American trait that we *had* something to say. All of us. And that we couldn't be scared off or even bored off from saying it.

That when it came right down to it, we stood up and spoke our minds and left it at: "That's my opinion, bub."

I believe this is still true. And I love it about us. As for the reading, I believe we have a genuine and unfulfilled hunger to talk to each other.

O.K. If you're interested, you can help us in any of 3 ways.

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2. *Write for us,* especially about things in your immediate experience that deserve sharing. Published contributions will carry your name and hometown, and you will receive an honorarium of $25.

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upon a time, it is said, the king came in disguise to the home of a cowherd, whose wife set him to minding some cakes she was baking; but Alfred's thoughts drifted off to lesser problems, such as how to save his country from the Vikings, and he let the cakes burn, suffering in consequence the fury of the housewife and hearing himself called names kings seldom hear applied to themselves.

Did Alfred really burn the cakes? What was he doing going about in disguise, anyway? And why was he called "the Great"? Professor Mapp gives us answers in this graceful and scholarly biography.

Woodcut of King Alfred in battle

Born in A.D. 849 as the fifth son of Ethelwulf, King of Wessex, Alfred seemed to have little chance of ever succeeding to the throne, but in the first 22 years of his life his father and all of his elder brothers died. In 871 he was crowned. It was not the best time to be a king in England, for the country was in the process of being conquered by Danes. The Vikings had first appeared in Wessex in 787; in 836 they had come in force; in 842 they had sacked London. No longer mere raiders, they now began to settle on their conquered lands—and they lusted after Wessex. In 878 they swept over the kingdom and Alfred, with a handful of followers, was forced to flee and hide at Athelney, "a 40-foot rise of land . . . surrounded by thickets and swamps."

It was during this period that Alfred is said to have frequently gone about in disguise, and it was on one of these excursions that he let the cakes burn. The

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story is at least as old as the tenth century and, says Mapp, "who can say for sure that there is not a grain of truth at the core of this baroque pearl of fancy?"

Only nine years after becoming a fugitive, master only of a 30-acre plot of wilderness in a land overrun with Danes, Alfred had not only regained his throne but was acknowledged as king of the English, for he had added Mercia and Kent to his own Wessex.

To be "a savior of civilization from barbarian conquest" would be enough to make any king great, but Alfred went on to achieve much more. He became "the greatest naval architect in Europe, the creator of a distinctive style of public architecture, the promulgator of a famous code of laws, the founder of the oldest continuous literary tradition in the Occident, the originator of a system of public education, and the producer of translations of the classics that have endured a thousand years." He also "made the greatest contribution to European geography in four hundred years." And he invented a clock.

Not only was Alfred "a genius . . . a man of accomplishment unparalleled in medieval or modern history" but his character, it would appear, was unflawed: If he ever said an improper word or did an ignoble deed or committed an immoral act, the author did not discover the fact. He appears too good to be real: a man of intelligence and culture, physically and morally courageous, who possessed, it seems, all the virtues and no vices.

The Golden Dragon (the title comes from the symbol of the House of Wessex) contains much interesting information on the social classes, customs and way of life in ninth-century England, not least of which is in the inclusion of Alfred's famous code of laws which, together with his will, is given in full in an appendix.
—Byron Farwell
Author of *Queen Victoria's Little Wars*

Rolling Thunder: A Personal Exploration into the Secret Healing Powers of an American Indian Medicine Man
Doug Boyd
(Random House, $8.95)

A medical "prescription" for a medieval European suffering from Saint Vitus' Dance may well have included Shakespeare's "eye of newt, and toe of frog," but it also included the plant, *Rauwolfia*

serpentina. The final concoction, however noxious, should have been helpful to the sick person, for from that plant medical science has derived reserpine, a modern and useful tranquilizing drug.

Similarly, some South American Indians used to chew the bark of the cinchona tree when they were afflicted with malaria, and from that bark has since come quinine. And when I visited Window Rock, Arizona, on the Navajo Indian reservation, a few years ago, a white physician of the U.S. Public Health Service told me that he often welcomed the assistance of the Navajo medicine men in treating sick Indians because they utilized psychiatric principles that were millennia old to them, but that we thought had been discovered only by Freud or by his followers.

Of the "civilized" countries of the world today, only China has been making a systematic effort to study ancient folk medicine in order to sift out and retain those elements that helped to keep ancestors alive. The result of the Chinese effort to date is almost universally agreed to have been greatly beneficial, even though it includes some things, such as acupuncture, that remain puzzling. There is much that scientists—and all the rest of us—still need to learn about ancestral wisdom.

So it was with high anticipation that I came to Mr. Boyd's book. He is identified on the dust jacket as "a researcher with the prestigious Menninger Clinic."

He is sailing under false colors. This book does not have Menninger "endorsement"—Mr. Boyd says *that* in so many words at the beginning, but then he goes on to make much of Menninger support throughout the text. (The Menninger Foundation apparently did pay him some kind of salary and expenses while he was at work on his "research.") This book is about as useful to medicine and healing as are the poems of Khalil Gibran or the ceremonies of Oral Roberts.

Mr. Boyd had spent ten years in the Far East, where he was much impressed by a swami. In this country he met Rolling Thunder, a medicine man, and was equally captivated. He decided to discover what he could of Rolling Thunder's secrets, and so became not a student but a disciple.

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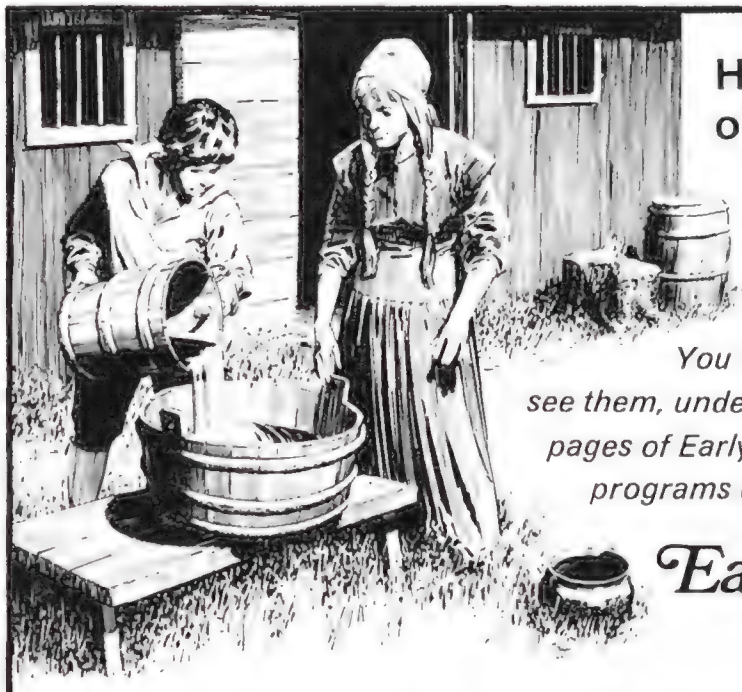

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ers produced lightning and rain, this explanation seeming more likely to Mr. Boyd than that he understood the vagaries of the local weather.

An ordinary glass of water will become powerful medicine if someone prays over it properly.

When Rolling Thunder at first could not find his tobacco pouch in his car and then produced it, this was proof that he had materialized it from his house, many miles away.

This is the level of Mr. Boyd's book. Along the way he says some inspiring things about the need for unity between man and nature around him, and many troubling and justified things about the way the white man is trampling upon the rights of the Indian, but basically his interest is in such yarns.

If you are what was called a "flower child" not very long ago (say seven or eight years), you may find this book of interest.

—Jay Nelson Tuck
Consultant and free-lance writer,
specializing in health care delivery

Great Times: An Informal Social History of the United States, 1914-1929
J. C. Furnas
(Putnam, $15.00)

Echoes of Distant Thunder: Life in the United States, 1914-1918
Edward Robb Ellis
(Coward, McCann & Geoghegan, $15.00)

The worst influenza epidemic the world has ever suffered began in 1918. It took 21 million lives—10 million more than World War I itself was to claim. Ocean liners docked in New York with dozens of passengers stricken—some had been buried at sea. A New York health commissioner called the casket business a more malignant trust than oil. On the streets, people wore medical gauze masks. Drivers of many public vehicles refused to pick up passengers without white masks. Accordingly, in San Francisco, a cabbie picked up a trio with their obligatory masks in place—and they robbed him!

Now *that* has the ring of truth. Say what you will about its implications for the future of mankind, this is the kind of historical parable that makes for good reading. And it is also the kind of history that the Arnold Toynbees and the Arthur Marwicks have too little time for.

Fortunately, J. C. Furnas and Edward

Robb Ellis have found the time. Together, their two books of social history demonstrate that practically everything is of value in letting us in on the way we were. But their work is not mere nostalgia—although there is plenty of that. This was, after all, the era when "September Morn" (1912), a minor painting by an obscure French artist, could enrage Anthony Comstock's Society for the Suppression of Vice—thus ensuring its immortality; when the great Caruso was arrested for "mashing" in Central Park; when Woodrow Wilson moved into the White House and brought along his collection of hundreds of canes; when Thomas R. Marshall, Wilson's able vice president, would patiently listen to a Senator's bromide about our nation's needs and then calmly offer this one-liner: "What this country needs is a really good five-cent cigar!"; when Henry Ford's peace telegram asking the support of Pope Benedict VII in Rome was returned because that particular pontiff had died nearly a thousand years before. And there's more where all that came from.

Above all, what surprises is the number of ideas whose time has come again. A sample:

Race relations. The 370th U.S. Infantry, a black National Guard outfit, with black officers and men, earned 16 Distinguished Service Crosses, 75 Croix de Guerre, and more battle awards than any other AEF regiment.

Sociology. Judge Ben B. Lindsey was an advocate of "trial marriage"—an "informal agreement on the part of a man and woman to live together until they change their minds—usually with the intention of not changing them."

The media. An amazed Upton Sinclair wrote, in 1914, after many frustrated attempts at bringing a certain social blight to attention: "You have to get yourself arrested, and instantly concrete walls turn into news channels!"

Long ago Plato reasoned that all our activities were cyclical and would recur at more or less regular intervals; he thought 30,000 years. We seem to have reduced his concept considerably. That means we may all be sitting here reading this same page of SMITHSONIAN some time in the future. In the meantime, it is not a bad idea to do a little reading in Furnas and Ellis to preview what we're in for.

—*Michael Olmert*
Writer and critic

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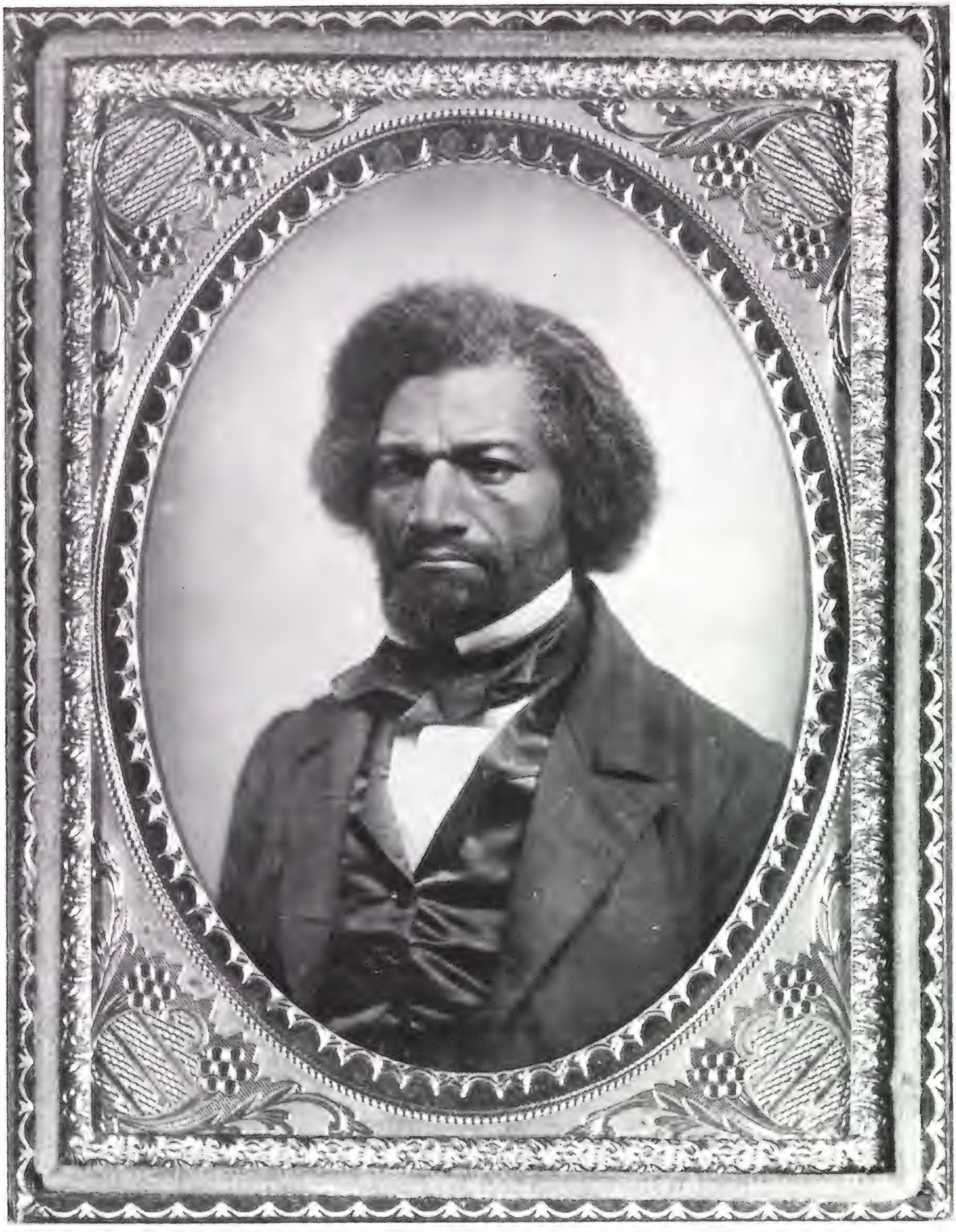


Frederick Douglass is depicted in a so-far unpublished ambrotype, 1856, from the National Portrait Gallery.

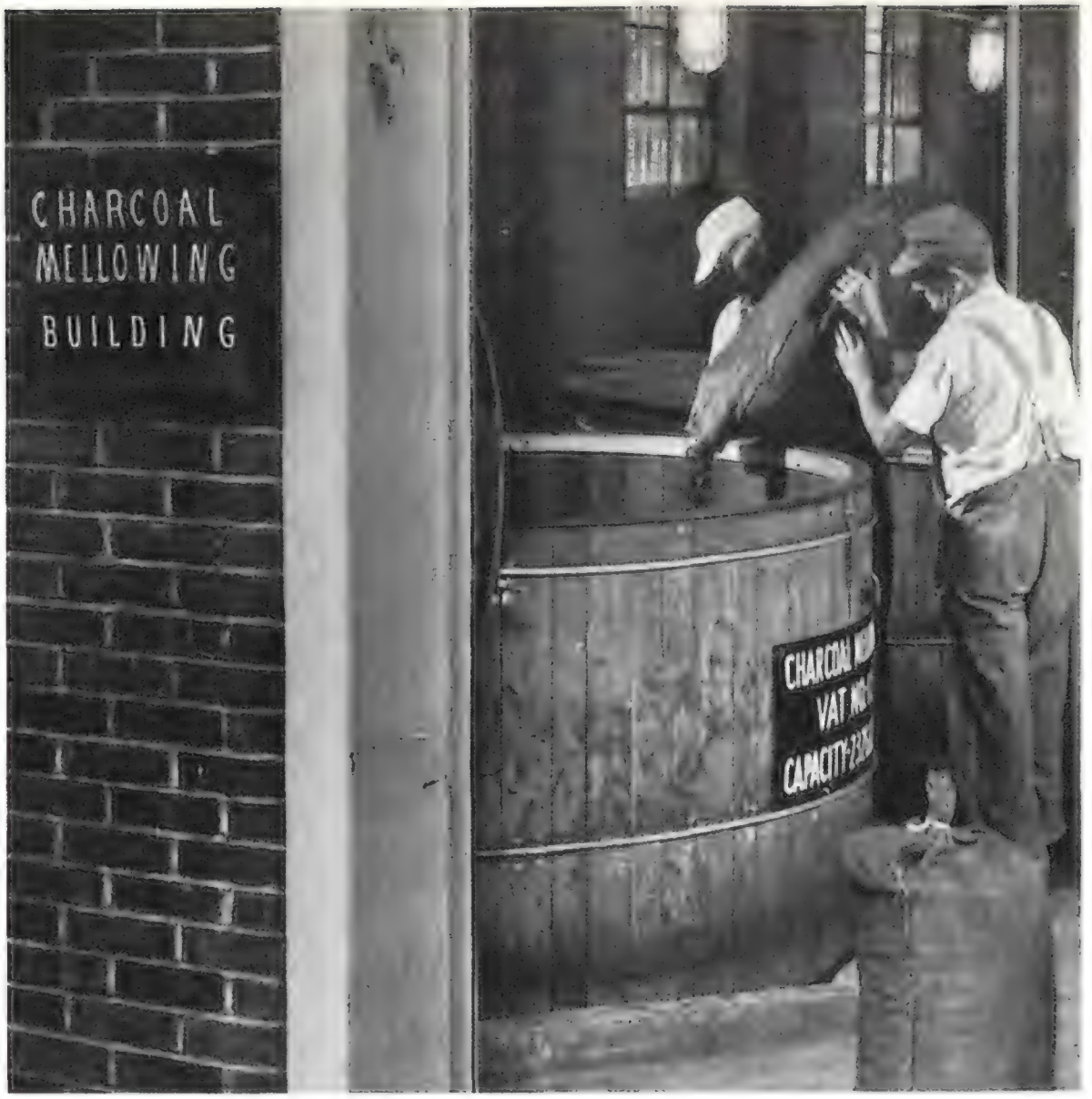
Smithsonian highlights

National Portrait Gallery
"Saint-Mémin Engravings" is an exhibition of the historical collection of 761 portraits given to the National Portrait Gallery by Mr. and Mrs. Paul Mellon. The extraordinary works of art were drawn from life and engraved between 1796 and 1814 when Saint-Mémin lived in the United States. Among the subjects are Thomas Jefferson, John Marshall, Mother Seton, James Madison, Meriwether Lewis and Charles Willson Peale.

"From Reliable Sources," the first exhibition in the new gallery of the Archives of American Art, will remain on view through September 1975. The exhibit, on the first floor of the National Portrait Gallery, commemorates the 20th anniversary of the Archives of American Art. It is the first in a series of shows to be selected from the vast collections of the Archives and includes letters, documents, sketchbooks and photographs of 29 artists of the 18th, 19th and 20th centuries.

Two new acquisitions of the National Portrait Gallery, paintings of George and Martha Washington by Rembrandt Peale, are on view in the Rotunda, second floor.

Puppet Theater,
Arts and Industries Building
Robert Louis Stevenson's *Treasure Island* is the new show presented by Allan Stevens & Company. Performance times are Wednesday, Thursday and Friday at 10:30 and 11:30 A.M., Saturday and Sunday at 10:30, 11:30 A.M. and 1:30 P.M. For ticket information and group reservations, call 381-5395.



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National Associates' Preview

A preview for National members of the Smithsonian Associates of the exhibition of "French Royal Jewels" from the Smithsonian's Hall of Gems was held in Houston, January 17-19. In conjunction with the University of Houston, the Smithsonian Institution invited Associates in the Houston metropolitan area to the opening nights which featured remarks by Philip G. Hoffman, president of the university, and a slide show by Paul Desautels, curator of gems and minerals at the Smithsonian. More than 3,000 members attended and, as a result of the overwhelming response to this first attempt to bring distinctive exhibits to National members, we hope to cosponsor, with local universities and museums, similar events in other communities.

National Collection of Fine Arts

"Recent Acquisitions: Prints and Drawings" presents a choice selection of works acquired by NCFA over the past two years. Approximately 60 prints, drawings, watercolors, monotypes and collages, ranging from mid-19th century to 1974, make up the exhibition. Local Washington artists Gene Davis and Sam Gilliam are included in the show. Among the others are Jim Dine, Louis Lozowick, Louise Nevelson, Claes Oldenberg, Jackson Pollock and Robert Rauschenberg.

Anacostia Neighborhood Museum

"Blacks in the Westward Movement" is the first of several Bicentennial exhibitions planned by the Anacostia Neighborhood Museum. Using appropriate texts, graphics and artifacts displayed in a Western environment, the exhibit attempts to tell the story of black explorers, pioneers and adventurers who were among the first settlers in this country. Although historians, the media and traditional education have portrayed the westward movement as a mostly white phenomenon, blacks played a major role in all aspects of the experience. The exhibition will tour various parts of the country over the next two years—through June 1.

Smithsonian Commons

Located in the Smithsonian Castle building, the Commons offers lunch for a fixed price of $3.25. Hours are 11:15 A.M. to 2:15 P.M., Monday through Friday.

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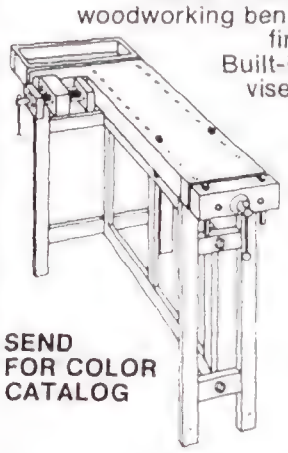

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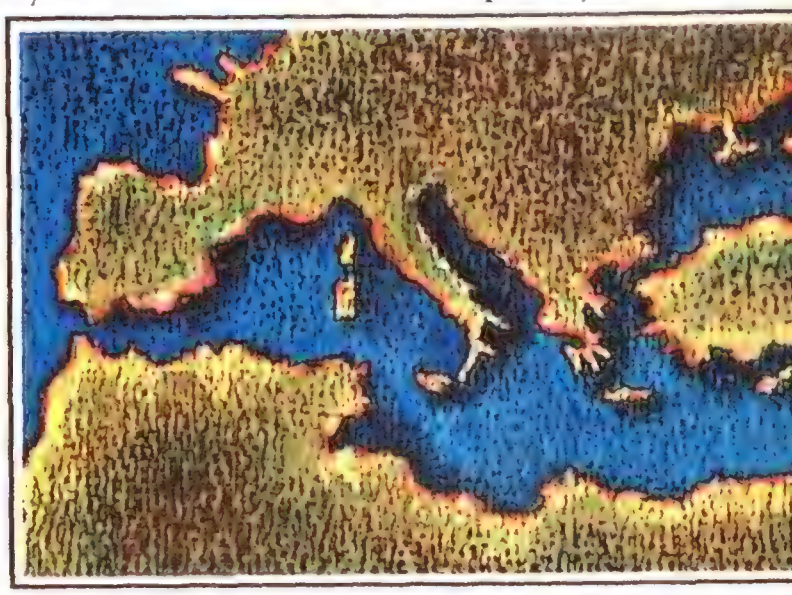

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The Theater Chamber Players present works by Bartók, Debussy and George Crumb, March 24, 8:30 P.M., Baird Auditorium, Museum of Natural History.

For tickets and information about discounts for Resident Associates, students and senior citizens, call (202) 381-5395.

Renwick Gallery

"H. H. Richardson and His Office" is an exhibition of over 200 architectural drawings dating from Henry Hobson Richardson's later years, 1874-1886. The drawings range from casual sketches on his letterhead to formal presentations for his clients. Richardson, who won the competition for Trinity Church in Boston, has been called America's greatest Victorian architect. The exhibition presents drawings executed in his Brookline, Massachusetts, office—opens March 21.

Winter Museum Hours

The Smithsonian museum buildings are open daily from 10 A.M. to 5:30 P.M. Hours for the National Zoological Park are 9 A.M. to 4:30 P.M. daily. For general information call the Associates Reception Center, (202) 381-6264.

Musical Weekend in Washington

The fourth annual musical weekend, featuring concerts in settings from the Opera House of the Kennedy Center to the Sculpture Garden of the new Hirshhorn Museum, will be held May 2-4. Included in the weekend are tours of Smithsonian museums and galleries, private dinners in Georgetown houses and the historic Smithsonian Castle, and a reception at one of the capital city's elegant embassies. A concert played on authentic, antique instruments from the Smithsonian's collection is a special event of this year's weekend. A limited number of reservations are available. Write to Musical Weekend, Museum of History and Technology, Room 4123, Smithsonian Institution, Washington, D.C. 20560.

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Travel Benefits for Smithsonian Associates

Ever since the beginning of the Smithsonian Associates, it has been the goal of the Smithsonian to establish a travel program meeting the needs of its membership. At first, a superb Foreign Study program under the direction of Dr. Richard Howland was available to Associates. In 1968, Domestic Study tours, strategically spotted across the country, were created. Now, a new travel benefit, Foreign Charter tours, has been added. This means there is a tour for every season, a tour for every taste and a tour for every purse. All trips are Smithsonian-sponsored, whether they are Foreign and Domestic Study tours (small group, specialized, intensive) or Foreign Charter tours (larger group, lower cost). Travel benefits are announced exclusively in SMITHSONIAN. For information on specific tours, write addresses below.

Domestic Study Tours

Death Valley—April 5-13: Camping under desert skies and study of the fascinating geology of this national monument; expeditions in four-wheel-drive dune buggies • **Pre-Civil War Mississippi**—April 13-20: Visit the governor's mansion and attend a reception in the rotunda of the old capitol building in Jackson; meet with local historians and owners of antebellum houses in Vicksburg, Port Gibson and Natchez; enjoy the spectacular Southern formal gardens • **Arizona**—May 3-12: Hopi and Navajo cultures, past and present; cliff dwellings and the scenic beauty of Grand Canyon and Canyon de Chelly • **Philadelphia**—May 14-18: The charm of Rittenhouse Square, Fairmount Park and Germantown • **Lincoln Heritage Trail**—June 7-14: Trace the history of the Lincoln family from Lexington, Kentucky, to Springfield, Illinois • **Quebec**—June 21-28: French culture in Montreal and Quebec City • **Williamsburg**—June 27-29: A weekend planned especially for families with children of elementary school age • **Colorado River Float**—July 2-11: A raft trip down the Colorado; camping on the banks and study of the fascinating geology of the canyon • **United States-Soviet Space Launch**—July 13-16: See the last scheduled Apollo launch at Cape Kennedy, with tour of facilities • **Iceland and Faroe Islands**—August 9-23: A trip through Iceland to the Westman and Faroe Islands • **Washington "Anytime" Weekend:** Choose any weekend to visit the nation's capital and enjoy a special tour of the original Smithsonian building, two nights at the elegant Loew's L'Enfant Plaza Hotel, close by, and a chance to see other sites in Washington (all-inclusive price is $59.95 per person based on double occupancy) • In September a **Forests of the Pacific Northwest** tour and in October an **All About Gems Weekend** at the Smithsonian • Write Domestic Study Tours, SI 106, Smithsonian Institution, Washington, D.C. 20560.

Foreign Study Tours

Australia and New Zealand—March 14-April 8: Flora, fauna and anthropology, via Tahiti and Fiji • **Northern Spain and Southern France**—May 13-June 4: Cave paintings and the art of Paleolithic man • **Classical Greece**—June 10-July 2: Archaeological sites in central Greece and the Peloponnesus • **Copenhagen to Lisbon**—August 23-September 14: Art and architecture cruise aboard the *Argonaut* to celebrate "European Architectural Heritage Year"; stops at major European ports • **Russia**—September 20-October 4: Art and architecture • **Hawaiian Islands**—November 8-21: Petroglyphs and natural history • Write Miss Bliss Schumann, Foreign Study Tours, SI 123, Smithsonian Institution, Washington, D.C. 20560.

Foreign Charter Tours

Great Britain—May 1-15 or September 25-October 9: The National Gallery, Tate, Victoria and Albert with expert guides; walking tours of literary London in search of Shakespeare and Dickens; springtime excursions into the countryside; the best of London theater and performing arts; a look at the modern city • **Russia**—May 8-22, May 21-June 4, October 2-16 or October 16-30 (waiting lists only): The Bolshoi Ballet, Moscow Circus, Hermitage and schools, factories and hospitals in Moscow, Leningrad and Tallinn, accompanied by skilled guides and interpreters • Low cost of tours includes first-class hotels, most meals (full board in USSR), sightseeing, lectures, theater performances and round-trip air fare from New York • Open to members of Smithsonian Associates only • Write Robert Angle, 900 Jefferson Drive, Smithsonian Institution, Washington, D.C. 20560.

Traveling Exhibition Service

There are up to 70 different Smithsonian-sponsored exhibitions on display each month throughout the United States and Canada. For a complete listing, write: Traveling Exhibition Service, Smithsonian Institution, Washington, D.C. 20560.

- Santa Ana, California—"Modern Movie Palace" (Bower Museum, March 8-April 6).
- Greeley, Colorado—"Manuscripts of the American Revolution" (Greeley Civic Center, March 15-April 13).
- Palm Beach, Florida—"A Children's World" (Flagler Museum, March 1-30).
- Chestertown, Maryland—"Early Chicago Architecture" (Washington College, March 8-April 6).
- Acton, Massachusetts—"Suiting Everyone" (TNT, Inc., March 15-July 20).
- Springfield, Massachusetts — "Black Presence in the Era of the American Revolution" (Springfield Bicentennial Committee, March 1-30).
- Rochester, Minnesota—"Manuscripts of the American Revolution" (Olmsted County Historical Society, March 15-April 13).
- Kalamazoo, Michigan—"Witness to our Time" (Kalamazoo Institute of Arts, March 1-30).
- Minneapolis, Minnesota—"200 Years of Royal Copenhagen Porcelain" (American Swedish Institute, March 15-April 20).
- New York, New York—"Hand of Man on America: Photographs by David Plowden" (Columbia University School of Architecture, March 8-April 6).

Resident Associates Events

This year's "Go Fly a Kite" festival features a lecture on the history of kite-flying, a workshop demonstrating various methods of design and construction, and a homemade kite-flying contest on the Mall. The latter is open to the public; lecture and workshop open to Resident Associates only. The contest is scheduled for March 22, with registration at noon. For flying rules and regulations, call (202) 381-5157.

Parking on the Mall

Metro construction has made parking on the Mall near the Smithsonian complex extremely difficult. All parking prior to 10 A.M. is restricted. Write Associates' Reception Center, Smithsonian Institution, Washington, D.C. 20560, regarding other parking and public transportation.

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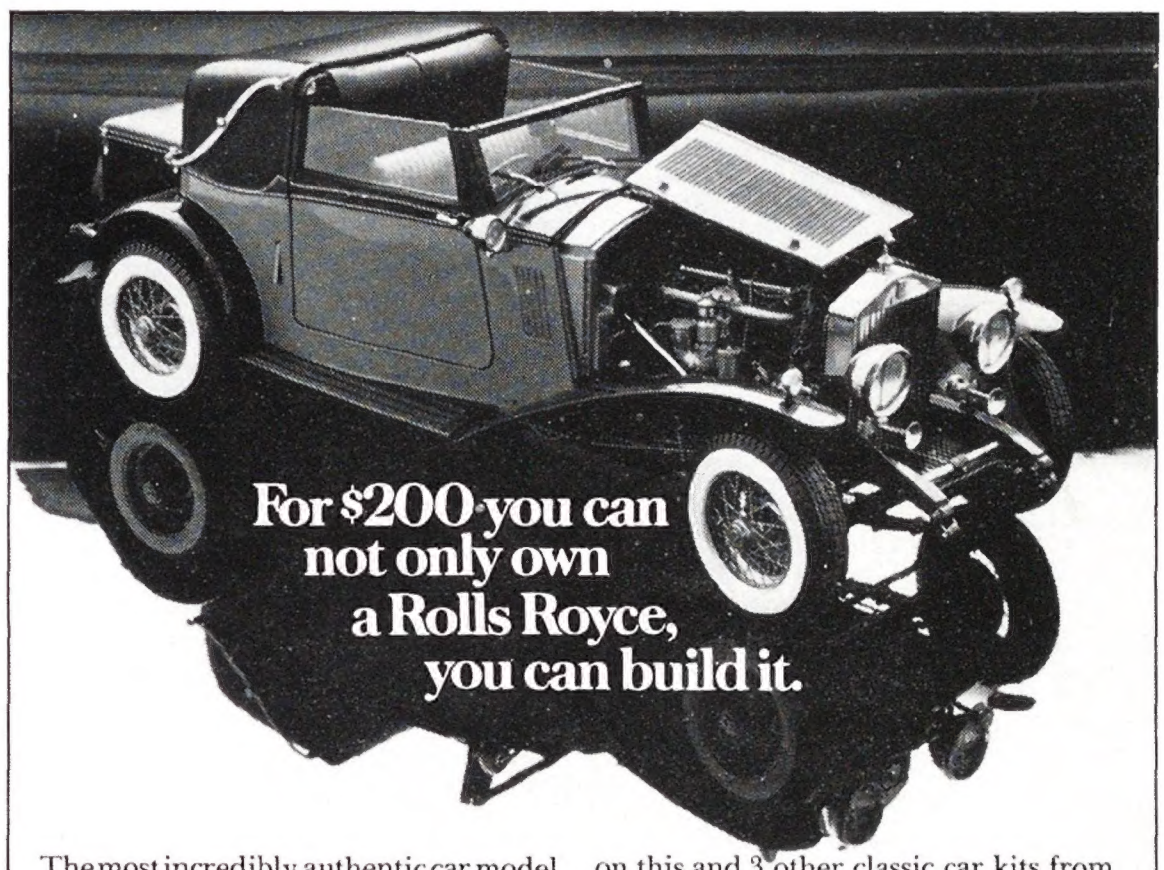

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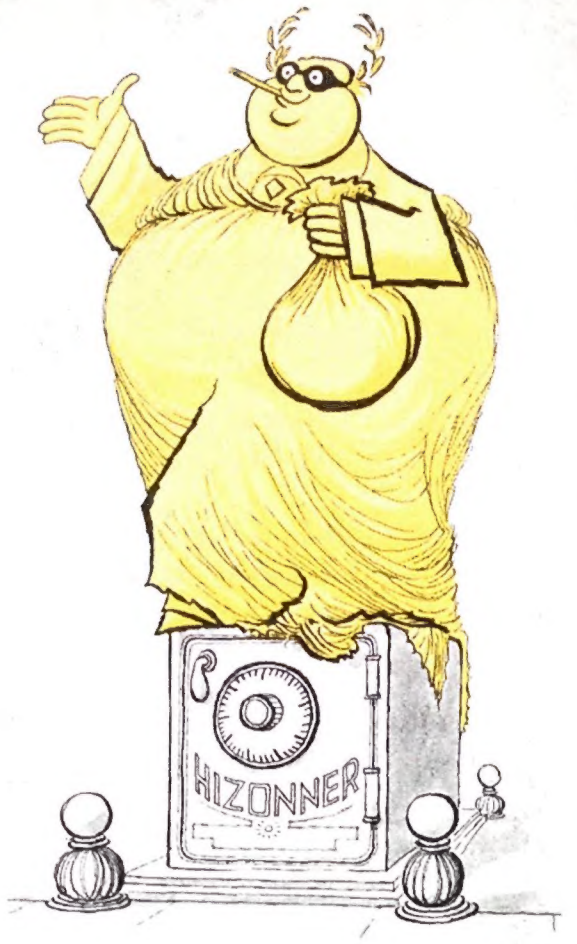
By Alexander B. Callow jr.

Those were the days— when political sin had style!



Two waves have been sweeping the country, the warmth of nostalgia and the horrors of Watergate. I admit to succumbing to both. I long for the past, and I am shocked by the present, but for reasons different perhaps from those of most folks. I yearn for the style of the days when "everybody was doing it," the Republicans and the Democrats, but especially the real pros, the old-fashioned city bosses: Boss Tweed and Richard Croker of New York, Hinky Dink Kenna and Bath-House John Coughlin of Chicago, Chris Buckley, the "Blind Boss" of San Francisco, Tom Pendergast of Kansas City, "Mistah" Ed Crump of Memphis ("the finest bygod peckerwood in these parts"), and James Michael Curley "Hisself" of Boston.

Modern political chicanery shocks me because it is too sophisticated for my taste —too, well, effeminate. I think it is sissy for defendants to "dissemble" (to be less than candid). I prefer a real man, a man with jaw, like Big Bill Devery, a Tammany Hall ward leader and police chief at the turn of the century, who, when questioned about the incredible amount of vice in his district, said "Touchin' on and appertainin' to that matter, I disremember." I like the guys who could *really* "stonewall" it, like William Marcy Tweed. In 1871, when the Tweed Ring was accused of stealing millions of dollars, Boss Tweed said, "What are you going to do about it?" (His lieutenant, the Mayor of New York, the elegant Oakey Hall, said, "Who's going to sue?") My top awards go to Frank Hague: "I am the law! I decide. I do. Me. Right here. And if the people of Jersey City don't like the way I run the town, they can get another mayor"; to Ed Butler: "I've been stealing elections in St. Louis for 30 years"; and to Jimmy Walker of New York: "There comes a time in politics when a man must rise above principle."

My "stand-up" guy is Tim Campbell, a Tammany warrior who could give a short talk, make his points with precision, and sit down. In the 1890s, he delivered this speech in his Irish district (his opponent was an Italian named Rinaldo):

"There is two bills before the country— the Mills bill and the McKinley bill. The Mills bill is for free trade with everything free; the McKinley bill is for protection with nothing free. Do you want everything free or do you want to pay?

"Having thus disposed of the national issue, I will now devote myself to the local issue, which is the Dago Rinaldo. He is from Italy. I am from Ireland. Are you in favor of Italy or Ireland?

"Having thus disposed of the local issue and thanking you for your attention, I will now retire."

I can sympathize with Boss Curley's antagonism toward genteel reformers. When some Boston Brahmins called Curley a thief, he said, "The term 'codfish aristocracy' is a reflection on the fish." I'm nostalgic because the bad guys don't even look like bad guys anymore—too neat, too educated, too articulate. I admire Tammany Hall's Dick Croker, with his cocked black derby hat, pig eyes, all shoulders, no neck, a man who snarled, a man who looked like something God had hacked out with a dull ax. In response to the question before the Mazet Investigating Committee, "Then you are working for your own pocket, are you not?" Croker answered, "All the time; the same as you." Can you imagine today's charlatans saying, "Ballot boxes are never stuffed, unless it's absolutely necessary," as John I. Fitzgerald of Boston did once?

Today's political sin is just too slick for me. I long for the old-fashioned wickedness, with all the incriminating evidence left in. Take the house that Tweed built, the New York County Courthouse, an acropolis of graft, which cost nearly twice as much as Alaska. For all its greed, the Tweed Ring showed evidence of good humor, a certain dash, a feeling that here were men who really enjoyed their work. For example: For just three tables and 40 chairs, the city paid, to the penny, $179,729.60; for brooms, etc., $41,190.95; one check was endorsed by "Phillip F. Dummey," and another made out to T. C. Cash for $64,000. A bill for a plastering job on an iron and marble building came to $2,870,464.06 (the *New York Times* suggested the six cents be donated to charity), of which $1,294,684.13 went for *repairs* on a building not yet completed.

This, then, is my last hurrah for an American original, the city boss and his machine, dedicated to the good old days when, as Dick "Dock Whalloper" Butler put it, "Grafting used to be . . . above board, like it should be if it's fairly honest."

The author teaches history at the University of California, Santa Barbara, and has written a book on Tweed.

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